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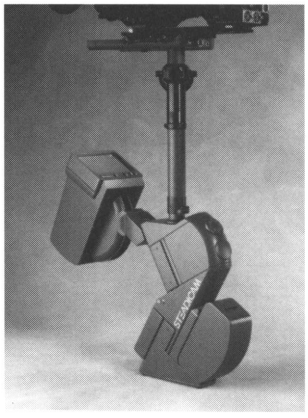

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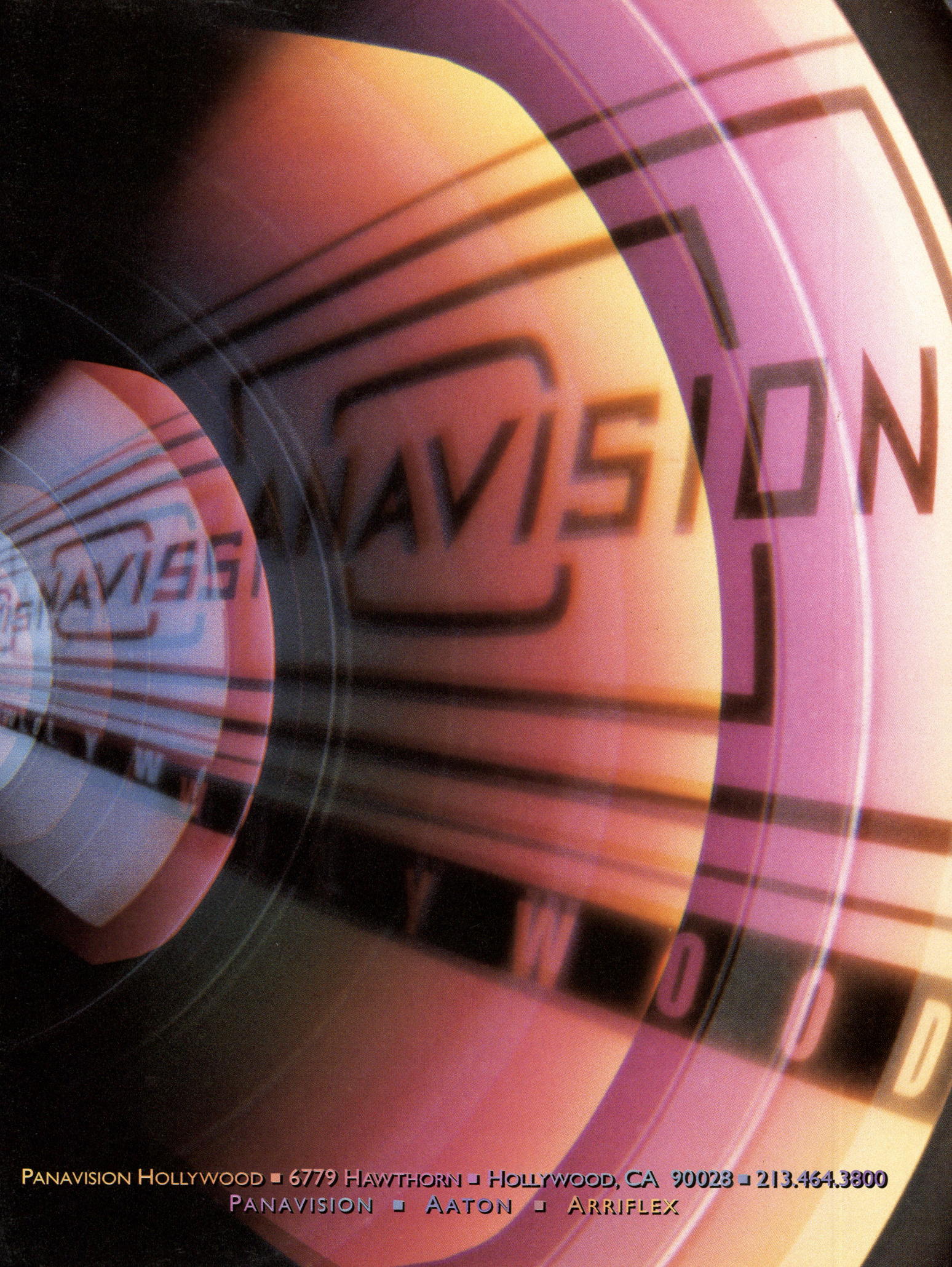
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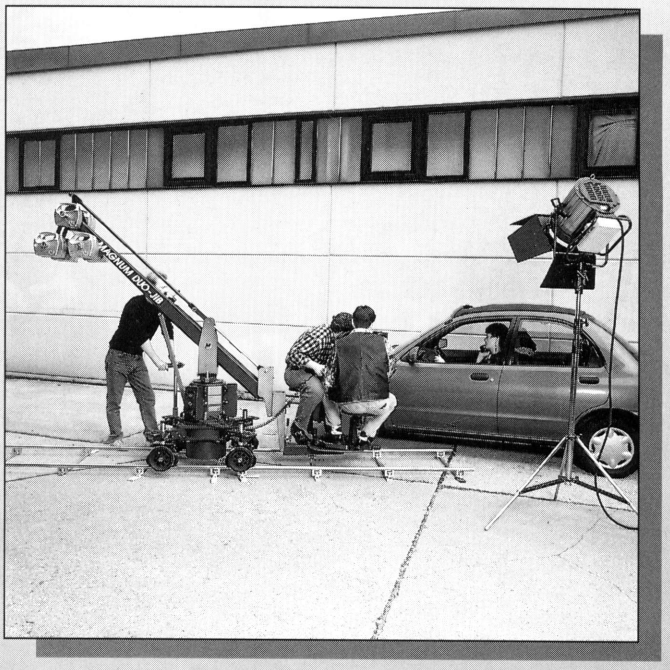

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On Our Cover:
Siddhartha (Keanu Reeves) strikes a reflective pose in an elegant composition from *Little Buddha,* shot by Vittorio Storaro, ASC, AIC.

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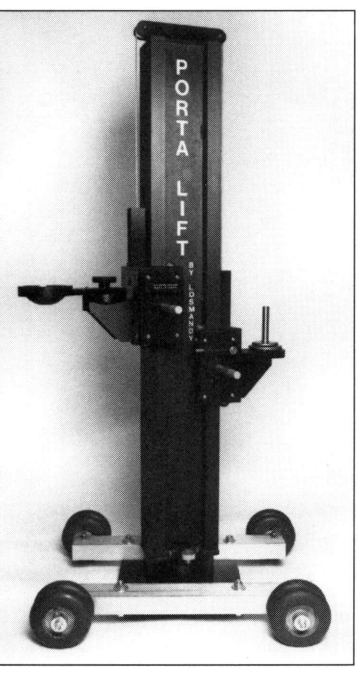

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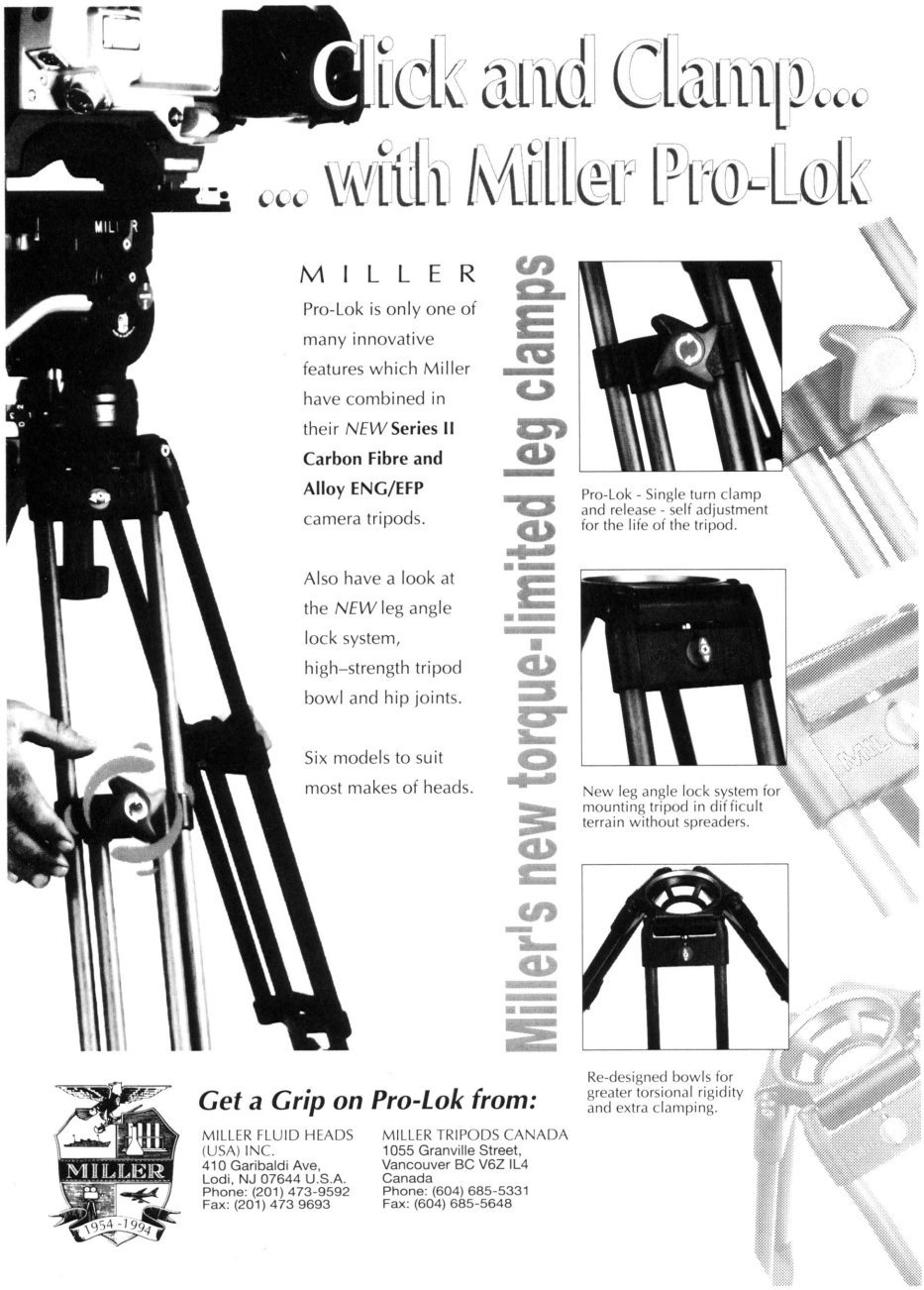
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Letters

Peter Salim Remembered

Peter Salim, a member of both the ASC and the Director's Guild who passed away on February 2, was an inspirational example of achievement through determination. Peter had an abundance of talent as well, plus sensitivity and a strong belief in himself.

It was on a film I was producing in New York that he first insinuated himself into the business. One day, coming into the editing room, I saw a stranger watching the editor at work. "Who is he?" I asked. "Oh, he's from Buffalo," was the reply. "He wants to learn film. Doesn't want any money, won't be any trouble." The next thing I knew, he was rewinding film and making splices.

A few weeks later, when the editor called in sick, I had to take over for a crucial network screening. My editing was a bit rusty, but Peter was right there to help, and by working together all night we were ready for a successful screening.

That was the beginning of his long friendship with my family. He even taught my young son to swim.

He became a production assistant on my next assignment and soon found a way to prove his worth. I was directing a documentary on a United States destroyer off the coast of Norfolk, Virginia. Peter had stayed ashore and was supposed to meet the ship on Monday with cash so that the crew could be paid off at dockside on the day we were scheduled to return.

However, a hurricane was blowing up the coast, and we had to head to port a day early, on a Sunday. As we pulled up to the dock, I was sure I was in trouble, but there was Peter waving and indicating that he had the money. He had kept track of the weather, assumed we'd be coming in early, and had somehow, even on a weekend, gotten the money and was waiting for us with a big grin on his face.

That would be typical of his resourcefulness and good humor for the rest of his career.

From a young man who hung around an editing room in New York, taking every opportunity to learn about film, he became a production assistant, an assistant cameraman in Hollywood, then a director of photography, and eventually a director on such hit television series as *Spenser for Hire, In the Heat of the Night,* and *Murder, She Wrote.*

His many abilities were recognized and appreciated, for on each of the series he photographed, he was given episodes to direct. He was well on his way to a successful career as a director.

Peter's sudden death from a heart attack, coming in mid-life, was a shock. His talent and friendship will be missed by all who knew and loved him.

— Nicholas Webster, DGA
Pacific Palisades, CA

The Origins of Ratios

Regarding the discussion of HDTV standards in the March issue, the reminiscences about the origins of the technique of achieving non-anamorphic wide-screen theatrical projection by masking off the top and bottom of the 1.37:1 image are not quite correct.

It was Paramount who first publicly demonstrated the idea, at a press screening of *Shane.* That studio had the largest backlog of unreleased films when 20th Century-Fox first announced CinemaScope, and had its chief engineer, Loren L. Ryder, experiment to find a ratio that lost the least amount of important vertical picture information. He chose 1.66:1.

However, a week later, Universal press-screened *Thunder Bay* at 1.85:1 and tests composed for projection at 2:1. The following week, Columbia also came out in favor of 1.85:1, while MGM chose, initially for foreign use only, 1.75:1 — the ratio closest to the proposed 16:9 of HDTV.

By the end of April, 1953, all but three companies had announced that

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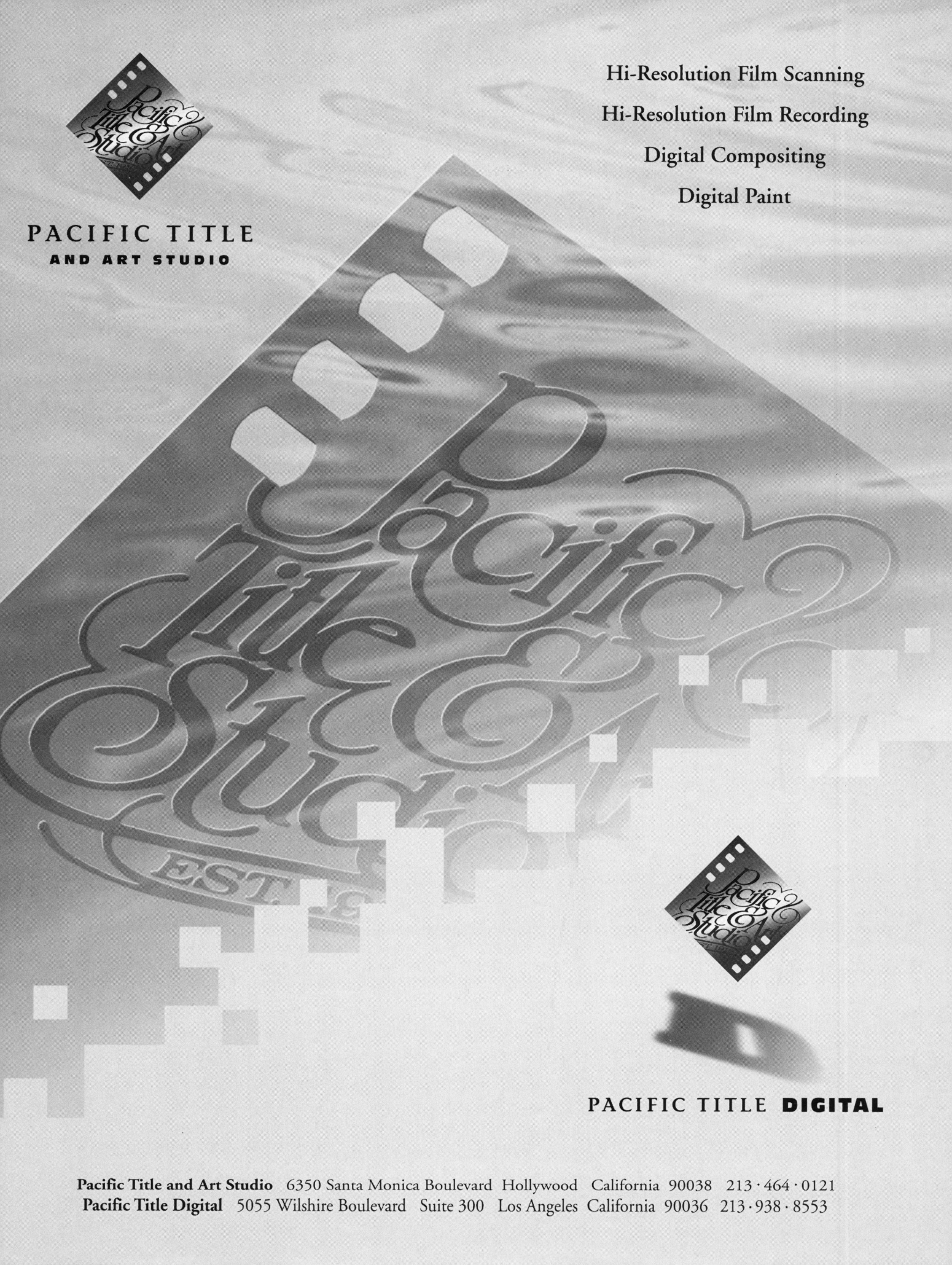
their summer releases would be shown in their first-run engagements at that studio's chosen aspect ratio and that all future films would be composed via finder markings to keep important action within those ratios. Paramount, RKO, and Republic were using 1.66:1; MGM and Disney, 1.75:1; and Allied Artists, Columbia, and Universal, 1.85:1, though the latter's upcoming films were to be composed for 2:1. United Artists left the decision to the individual producer while Warners, which had no films in production at the time, later came out for 1.75:1, and Fox, after forming Panoramic Pictures to make a slate of non-CinemaScope "B" pictures, chose 1.66:1.

I have not been able to find any definite establishment of 1.85:1 as a standard for this projection technique, which is particularly strange, since after the release of *The Robe*, when large numbers of theaters were putting in CinemaScope screens and opting for masked projection for non-anamorphic films, the favored aspect ratio was 1.66:1.

The development of VistaVision came about because of the degradation of image quality resulting from this projection technique, especially when used on very large screens. MGM and Technicolor, as well as Paramount, initially experimented with running 35mm negative horizontally through a camera to get a larger, wider-format negative. Although Paramount originally stuck with 1.66:1 as the recommended projection ratio for VistaVision, it later conceded that the higher quality image could stand up to magnification to 1.85:1, and some horizontally projected VistaVision prints were shown at 2:1.

— Rick Mitchell
Los Angeles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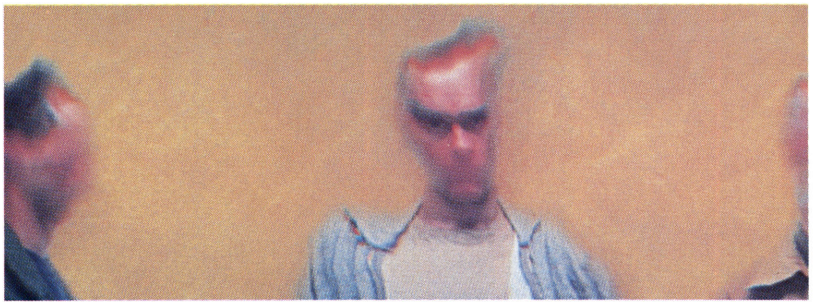
Digital Continues to Open Creative Doors

compiled by Marji Rhea



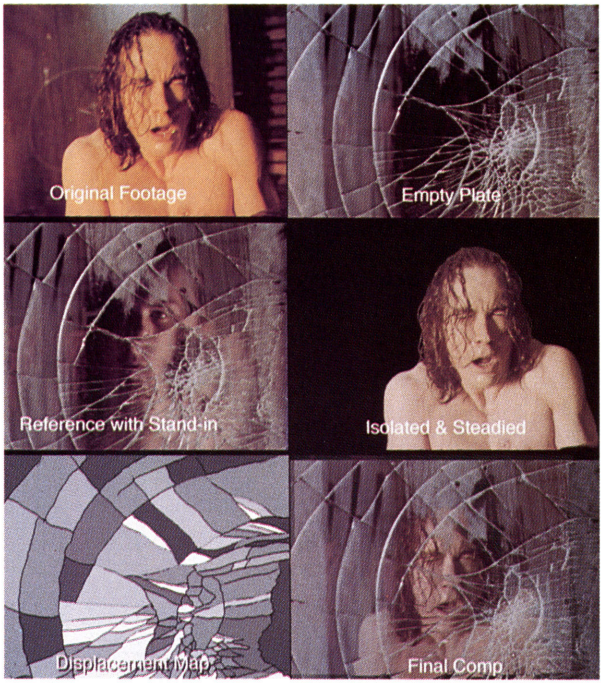
Top: ***In the suspense thriller*** **Blink,** ***faces in a police lineup are digitally distorted.*** **Bottom:** ***The producers of*** **The Crow** ***used computer technology to complete seven scenes after the untimely death of star Brandon Lee.***

Digital Effects for *Blink*

In designing the look for the point of view of the blind character Emma in the feature *Blink,* MetroLight discovered that regaining eyesight is not necessarily the miracle that everyone believes. People who recover their eyesight frequently have a delayed afterimage, sometimes up to 24 hours later. Emma, who witnesses a murderer fleeing his crime, continues to see his image throughout the course of the film, not quite sure whether he's there or not.

MetroLight Studios provided the character with her hallucinations, dubbed Emmavision. When Emma first regains her sight, an explosion of light renders a ghostly image of her doctor, whose features then keep changing. The doctor was shot against bluescreen from two different camera positions. The MetroLight team then isolated six different areas of his face and, using proprietary software, morphed between those different features to give his face a rubbery transformation.

Later, Emma is asked to pick out the killer in a police line-up. Unfortunately, Emma's vision, already blurred and undependable, tends to worsen under stress, and here she perceives each subject as losing his features. She then sees certain features of the killer superimposed over the now-blank faces. MetroLight tackled this by shooting each suspect as an individual plate, then digitally arranging the subjects into one continuous panning shot. With their internal proprietary software they progressively removed the features of the suspects and morphed certain features of the killer back into these faces. Using a combination of morph software as well as wire-removal, the team came up with a surreal, hallucinatory type of transformation from the suspect to the featureless face to the killer's features, and then finally back to the killer again, all with Emmavision's undulating, waving distortion.



For information: MetroLight Studios, 5724 W. Third Street, Suite 400, Los Angeles, CA 90036, (213) 932-0400, FAX (213) 932-8440.

The Crow Flies

After the untimely death of Brandon Lee, the producers of *The Crow* asked Dream Quest Images, the Simi Valley-based special effects company, to create seven new scenes with Lee by using available footage. For three shots, Dream Quest took Lee out of one scene and put him into another. Visual effects supervisor Tim Landry and team were given the task of placing Brandon's face as a reflection in a mirror. For another two shots, Lee's face was painted on another actor's body, and in two more, the backgrounds behind Lee were changed to make each look like a different scene.

The original shots for *The Crow* were not planned for digital manipulation, and in every scene, the lighting and color had to be matched and Lee's position had to be carefully tracked. One close-up, reports Burdick, was over 25 seconds long.

Another challenge required Dream Quest Images to take Lee out of a scene in which he is walking down an alley and have him walk through an apartment door instead. Adding to the already complicated problem was the

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Adam Greenberg, *ASC, Director of Photography*

MUCH ADO ABOUT NOTHING
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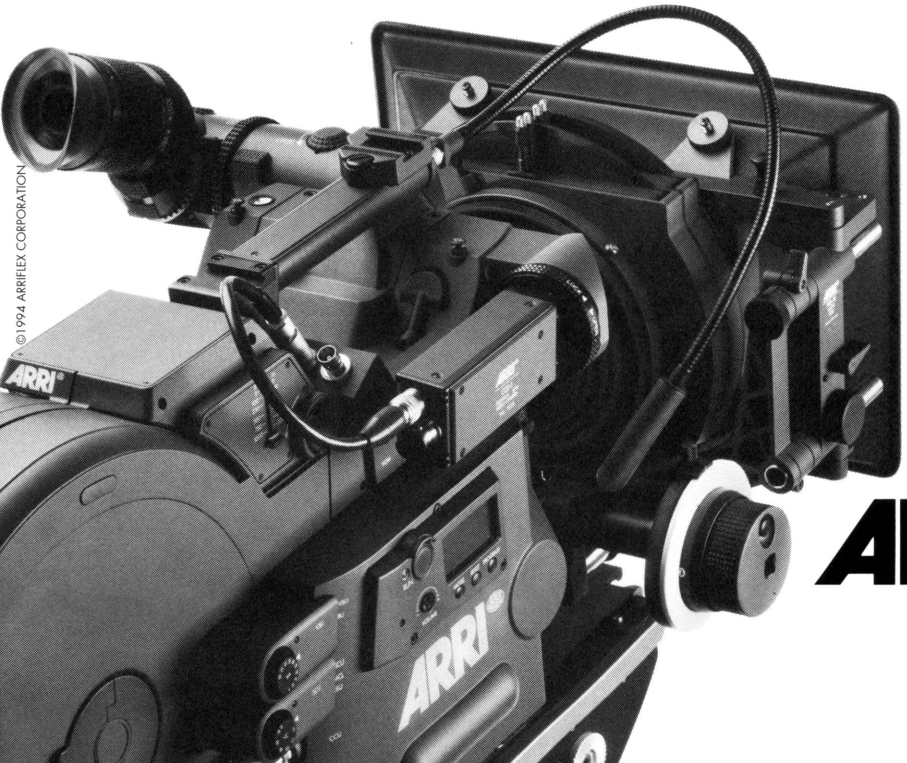

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In* Little Buddha, *Siddhartha (Keanu Reeves) grasps his own watery reflection with the help of the Computer Film Company's proprietary system.

fact that the footage had been shot with a handheld camera. Lee's movements had to be smoothed so he could come through the door convincingly.

Says digital executive producer Mark Galvin, "These shots are the first of their kind. We actually go in on a full-frame close-up of Brandon Lee's face, a face we have replaced on his body double. It's right there, in front of everybody and tempting fate. That's the beauty of digital."

For information: Dream Quest Images, 2635 Park Center Drive, Simi Valley, CA 93065, (805) 581-2671, (310) 558-4051, FAX (805) 583-4673.

CFC Enhances *Little Buddha*

The Computer Film Company (CFC) has created 38 digitally produced sequences, varying in length from 50 to 400 frames, for the latest Bernardo Bertolucci movie epic, *Little Buddha*. CFC's proprietary system claims to be the only system which can handle all the formats used in the film — a mixture of 65mm, VistaVision, and 35mm stock for release on both 70mm and 35mm prints.

A team of six operators (Nick Brooke, Paddy Eason, Roz Lowrie, Jessica Rufus, Chris Panton and Val Wardlaw) worked for three months on the project. CFC's designer/operator Val Wardlaw worked with the film's special effects director, Richard Conway, throughout the production, consulting on scenes that required digital effects. She went on location to Nepal and Pinewood Studios to ensure that material being shot would be suitable for manipulation using the company's specially designed system.

The effects center around the attempts by Mara, the lord of darkness, to tempt Siddartha from the path to enlightenment. The scene includes such digital effects as raging storms and flying fireballs and culminates with an assault by Mara's army of flame-throwing archers. A good number of the composites required sophisticated matting techniques to combine many elements shot separately. Mara's army was created by reproducing shots of a smaller block of actors many times across the scene.

Other effects involved morphing, tracking replacement skies into shots with complex camera moves, and the enhancement of existing elements. New tools designed for *Little Buddha* include water and light effects and software to aid rotoscoping and tracking.

CFC's equipment and techniques have been developed in-house and have been used in some 300 cinema commercials and more than 35 feature films, for clients throughout the world. Recent films worked on by CFC include *Second Best* and *The Hudsucker Proxy*. Current projects include *Mary Shelley's Frankenstein*, directed by Kenneth Branagh, and a unique 3-D stereoscopic project for installation at Disneyland.

For information: The Computer Film Company, 8522 National Blvd., Los Angeles 90232, (310) 838-3456, FAX (310) 838-1713.

Digital Optical Effects for *Spirit Dog*

Century III at Universal Studios Florida has created six minutes of digital film optical effects for Centre Communications' new film *Spirit Dog*, a project to be shown on TV's Discovery Channel and released theatrically. The variety of effects required rotoscoping, greenscreen composites and morphing.

The original film was transferred to D-1 video on Century III's Rank Telecine with daVinci color correction by colorist Bob Schmidt. Once on D-1, all postproduction was kept in the 601/D-1 domain in order to preserve maximum image quality for final output to film. Headed by Century III's Curtis Sponsler, the design staff worked around the clock to meet the delivery deadline. The team used the DFX Composium, Colorgraphics DP 4:2:2 and SGI Systems to create the various effects. Upon completion, the D-1 master was recorded to film for delivery to the client as a negative, for the final film cut.

A special challenge associated with the assignment was to keep all post at 30 fps, although the film was shot at 24 fps. This included a 30 fps film transfer, which was matched to a "speeded-up" cut of the offline master. This allowed a 1:1 relationship between film and video frames so the final negative has no blurred frames (due to the normal 3:2 pull-down effect of 24 fps film transfer). The final film negative and prints restores the proper speed as it is projected at 24 fps once again.

For information: Century III, (407) 354-1000.

Computers Aid *Brainscan*

Complex digital optical effects for the feature *Brainscan* were created at Sidley Wright MotionWorks, the Hollywood-based affiliate of National Video Center. The MotionWorks team was made up of effects producer Don Miskowich, animators Mike Rivero and Teddy Yang, and digital optical effects designer Steve Wright. Wright designed the digital optical effects for the film and advised *Brainscan* director John Flynn and producer Michel Roy on how to manipulate the live action.

When protagonist Michael battles the film's villain, the Trickster, he becomes completely absorbed into the Trickster's body and is seen travelling through the monster's eye and down the optic nerve. "Instead of a straight morph, we needed to keep the live action in that 'in-between' step for hundreds of frames to achieve the right gooshy effects," said Wright. A 3-D environment was created in the computer to resemble the slick-walled optic nerve tunnel. Actor Eddie Furlong, who plays Michael, was shot in slow-motion rolling against a green screen and composited with the 3-D tunnel after considerable rotoscoping.

For information: National Video Center, 460 West 42nd Street, New York, NY 10036, (212) 279-2000.

Continued next page

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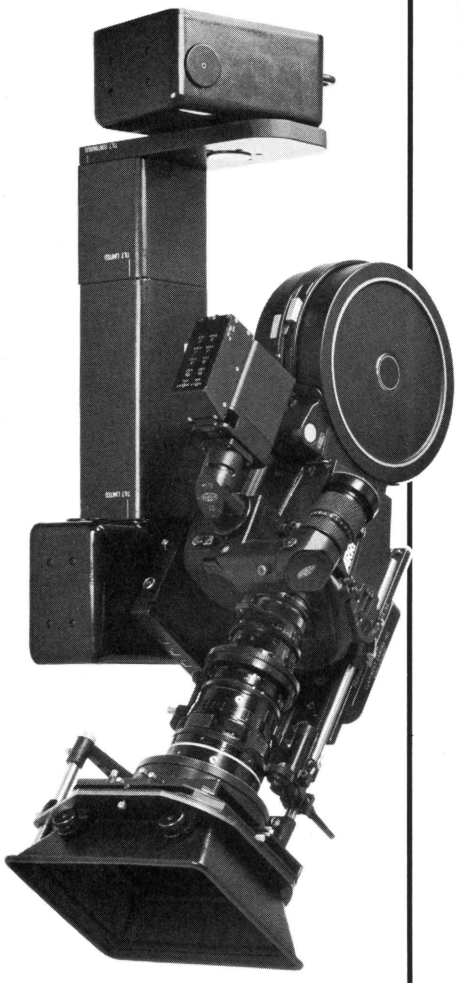

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Digital Magic Stays Active

Digital Magic, a digital visual effects and postproduction studio, has been busy with feature, television and commercial work. In addition to producing effects for *Star Trek: The Next Generation, Deep Space Nine, Lois and Clark: The New Adventures of Superman*, and *Viper*, the facility has been providing film transfers and online editing for *Northern Exposure, Dr. Quinn Medicine Woman, Lois and Clark*, and *The Road Home*.

With the acquisition of Quantel's Domino, feature films represent a significant portion of Digital Magic's business. The company has produced visual effects for *Bram Stoker's Dracula, Cliffhanger, Home Alone 2, Coneheads*, and *Patriot Games*, among others. Current projects include the feature *Evolver*, for which Digital Magic is providing visual effects supervision, 3-D design, modeling, construction, and animation, as well as using Quantel's Domino for digital compositing and animation and Harry for design and pre-comps. For *The Flemish Board*, a murder mystery feature filming in Paris and Madrid, they're using Domino for digital visual effects and Silicon Graphics Indy using Softimage and Elastic Reality software for morphs. For *Shrunken Heads*, a horror comedy feature about three severed heads terrorizing a city, Digital Magic is using its Domino for bluescreen compositing and animation. Digital Magic is also producing the visual effects for the movies-of-the-week *Trapped In Space* and *Alien Nation*, including visual effects supervision, modelmaking, motion-control photography, digital compositing and animation.

For information: Digital Magic, 3000 West Olympic Blvd., Santa Monica, CA 90404, (310) 315-4720, FAX (310) 315-4721.

Nike Spots

Digital Domain used the Flame special visual effects system to place offbeat character actor Dennis Hopper in the middle of NFL football action for a series of Nike commercials produced by Propaganda Films. The "Cannonball" spot's digital effects were created at Digital Domain by visual effects producer Paul Hettler, executive producer Ed Ulbrich, and visual effects supervisor Red Raimondi.

In the spot, Hopper appears as a woozy NFL referee, dazed by the footwork of Detroit Lions running back Barry Sanders. Viewers see him in referee attire, waving and dodging players in a slow-motion NFL replay, narrowly escaping a full-bore charge by Sanders. To place him there, the Digital Domain visual effects team employed Discreet Logic's Flame system to digitally match and composite new live action of Hopper, shot by director David Fincher (*Alien*^{3}), into the existing 16mm NFL footage.

The team used Flame to do extensive keying and matting of the foreground and used the system's stablematte and stabilizer. They also used their proprietary software with Flame to beat up and defocus the new footage of Hopper and match it to the grainier football action footage. "The hardest part of all was getting Hopper's feet to appear accurately on the turf so that he looked like he really was standing among the players, rather than hovering," says Raimondi.

For information: Discreet Logic, Inc., 5505 Boul. St. Laurent, Suite 5200, Montreal, Quebec, Canada H2T 1S6, (514) 272-0525, FAX (514) 272-0585; Digital Domain, 300 Rose Ave., Venice, CA 90291, (310) 314-2800, FAX (310) 314-2888.

Imax/Trumbull Merger

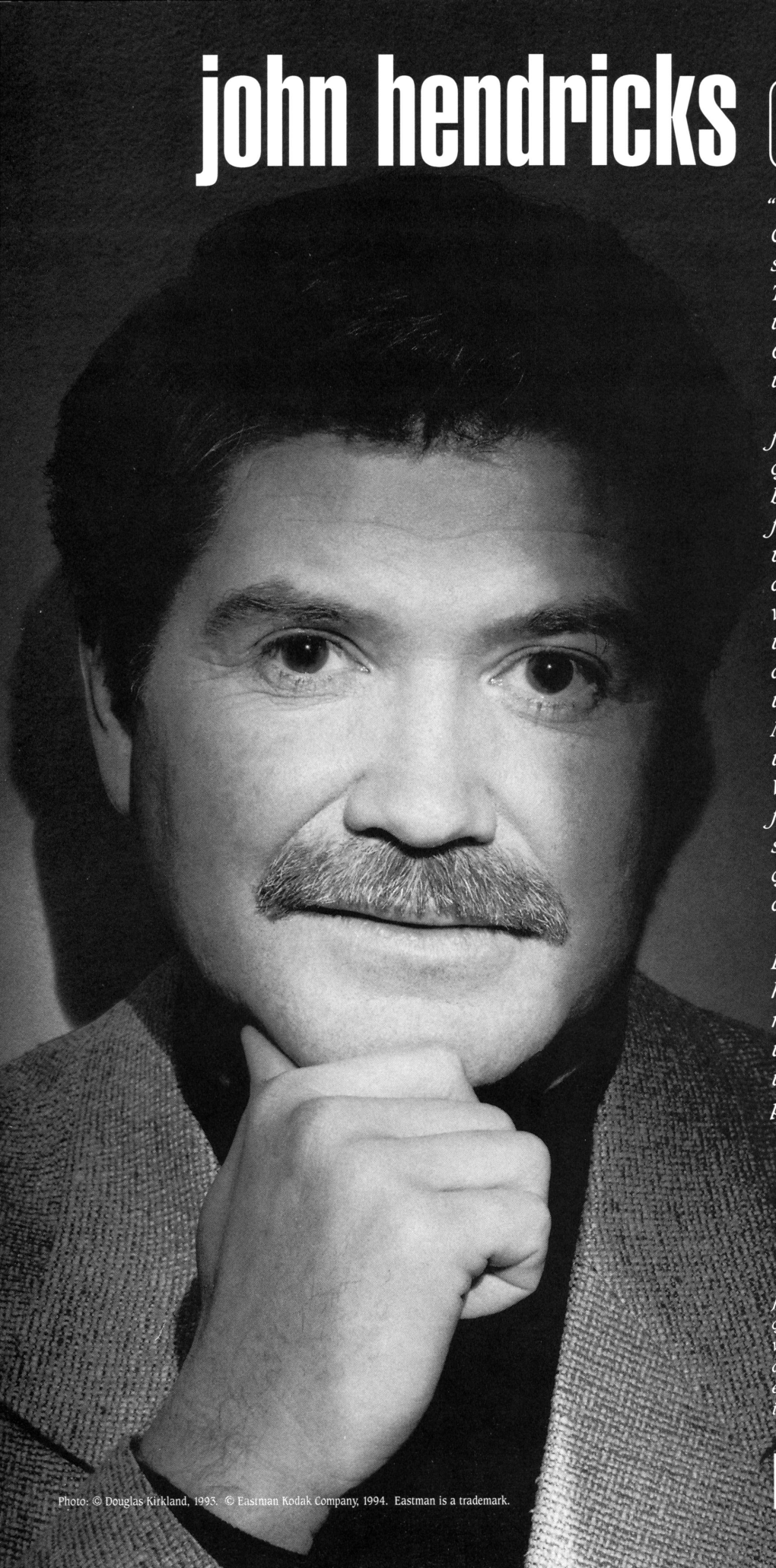
WGIM Acquisition Corporation has acquired both Imax Corporation, pioneer and leader in the giant-screen, large-format film industry, and The Trumbull Company, Inc., which will become a wholly-owned Imax subsidiary. Imax' core markets in museums and science centers, world's fairs and expositions will continue to be developed and supported. Imax also expects to accelerate its expansion into commercial markets, with Trumbull's Ridefilm Theaters playing an important role.

The new company is marketing specialized packages for theme parks, urban entertainment centers and other special venues. Its objective is to develop more sophisticated, audience-immersive attractions using its state-of-the-art three-dimensional (Imax 3D and Imax Solido) film and sound (Imax PSE) technologies.

For information: Craig A. Parsons, (310) 207-9300, Jennifer Rae, (416) 960-4352.

Continued next page

john hendricks on film:



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John S. Hendricks is chairman and CEO of Discovery Communications, Inc., which operates The Discovery Channel and The Learning Channel while exploring the leading edge of the future information superhighway.

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Digital Video Training Center

TouchVision Systems, Inc., developers of the D/Vision Non-linear Editing System, has announced the opening of a Digital Video Training Center in New York City. A cooperative venture between TouchVision, The Graphic Media Project, and DMJ Productions, the center has been established to train and educate film, video, desktop, and multimedia communicators in the newest technologies in digital video.

Located within Manhattan's Fashion Institute of Technology complex, the full-service center will offer hands-on training (at the facility or on-site), seminars on software and equipment utilizing digital video including the D/Vision product line, demonstrations, and consulting. With DMJ Productions housed in the center, clients will be able to view desktop video production and postproduction nonlinear editing suites in action.

For information: TouchVision Systems, Inc., 1800 Winnemac Ave., Chicago, IL 60640, (312) 989-2160.

Broadcasting from Disk

NBC affiliate WCSH-TV, based in Portland, Maine, became the first U.S. telvision station to air material using disk-based technology, airing commercials directly from AirPlay, Avid's digital-based, digital playback system. AirPlay is the first disk-based playback system to let broadcasters transmit news, promos, and commercials directly from computer hard disks, eliminating the need for videotape.

Because AirPlay is disk-based, there are no tapes to load, jam, or drop and no mechanical parts to maintain. The system's powerful database permits quick and easy schedule changes at the last minute, even while the system is on the air. AirPlay's modular architecture supports single-channel or multi-channel configurations and is thus easily scalable and upgradeable. Playback of both news programs and commercials is more efficient and less prone to on-air errors. And, because the base technology for AirPlay is not electro-mechanical, equipment and maintenance costs are lowered throughout the plant.

For information: Avid Technology, Inc., Metropolitan Technology Park, One Park West, Tewksbury, MA 01876, (508) 640-6789, FAX (508) 851-0418.

New Telecine Suite

Hollywood Digital has opened a third telecine bay offering a Rank Cintel Ursa, the DaVinci Renaissance 8.8.8 Color Corrector, Time Logic's Edit Controller, Graham Patten's D-Esam 800 and Sony monitors. Identical in design to the facility's other two telecine suites, the new bay sits on its own concrete floating floor, is mechanically decoupled from the other rooms as well as from the main building, and has been designed with extensive detailing for sound absorption, clear viewing, and client comfort.

For information: Hollywood Digital, 6690 Sunset Blvd., Hollywood, CA 90028, (213) 465-0101, FAX (213) 469-8055.

Midnight Cowboy Soundtrack

In celebration of *Midnight Cowboy*'s 25th Anniversary, Burbank's Chace Productions has digitally remastered the film in Chace Surround Stereo for its theatrical re-release. Under the supervision of director John Schlesinger and the film's producer, Jerome Hellman, the Chace Surround Stereo process was used to transform the mono tracks of the dialogue, music and effects from the theatrical version into four-channel LCRS (left/center/right/surround) for re-matrixing in Dolby stereo.

For information: Chace Surround Stereo, 201 S. Victory blvd., Burbank, CA 91502-2349, (818) 84-AUDIO, FAX (818) 842-8353.

Digital Betacam Popular

Sony's Digital Betacam format continues to be embraced by the production and postproduction communities. The following companies have purchased Digital Betacam equipment: The Family Channel, Dallas' WFAA-TV, The Canadian Broadcasting Corporation, Dallas' AMS Productions postproduction facility, Rome's Orbit Satellite Television Network, and Sweden's Sveriges Television.

For information: (800) 635-SONY.

New D-1 Editing Suite in Michigan

Grace & Wild Studios, Inc., has opened Michigan's first all-digital component D-1 editing suite. Located in the company's new postproduction facility,

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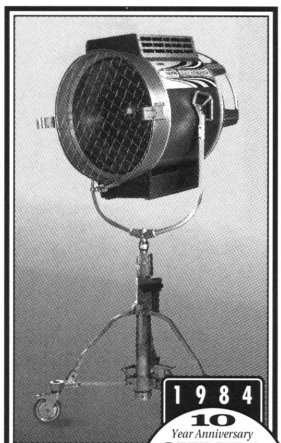

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For information: Grace & Wild Studios, 23689 Industrial Park Drive, Farmington Hills, MI 48335, (800) 451-6010, FAX (810) 471-2312.

Digital Compression Test Lab

Cable Television Laboratories, Inc. (CableLabs) has announced plans to establish a testing facility to verify the compatibility and interoperability of different compressed digital bitstreams and decoders using the MPEG (Moving Picture Experts Group) 2 standard. CableLabs is a research and development constortium of cable television system operators representing more than 85% of the cable subscribers in the United States and 70% of the subscribers in Canada. CableLabs plans and funds research and development projects that will help cable companies take advantage of future opportunities and meet future challenges in the television industry.

Says Richard Green, president and CEO of CableLabs, "Since the beginning of our efforts in the field of digital compression, our goal has been to foster convergence of digital compression technology. Convergence provides a clear path to interoperability within the cable industry and beyond to other distribution platforms and all forms of source material. It also opens the marketplace to a multivendor environment."

For information: CableLabs, 400 Centennial Parkway, Louisville, CO 80027-1266, (303) 661-9100, FAX (303) 661-9199.

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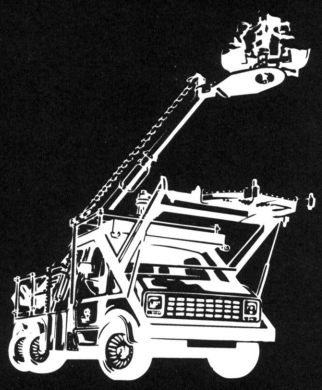

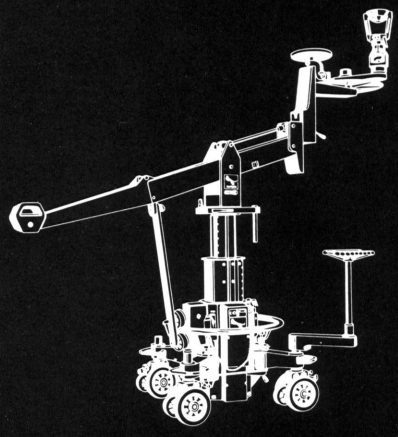

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Calendar

Summer 1994: Film and video workshops, The International Film and Television Workshops. Rockport, Maine. For information: The International Filmand Television Workshops, Rockport, ME 04856.

May 5-15, 1994: Charlotte Film and Video Festival, Charlotte, NC. For information: Mint Museum of Art, 2730 Randolph Road, Charlotte NC 28207.

May 7-14, 1994: 21st Athens International Film and Video Festival, Athens, Ohio. For information: (614) 593-1330.

May 10-12, 1994: Showcase for Audio-Visual Companies, IALTEX 94 (International Amusement, Leisure and Theme Park Expo), London. For information: World's Fair Exhibitions, 2 Daltry Street, Oldham OL1 4BB, England, 44.61.624.3687, FAX 44.61.624.2554.

May 18-20, 1994: 29th Equipment Exhibition of Motion Picture and Television, Japan. For information: Motion Picture and Television Engineering Society of Japan, Inc., Sankei Bldg. Annex 1-7-2, Otemachi, Chiyodaku, Tokyo, 100 Japan, 3.3231.7171, ext. 8729-8731, FAX 3.3241.4284.

May 18-22, 1994: 24th Annual Educational Film & Video Festival, featuring women animators, works by Bay Area makers, and youth-made video series, the Bay Area. For information: (510) 465-6885, FAX (510) 465-2835.

May 29-June 2, 1994: Series of five-day workshops, Winona International School of Professional Photography in cooperation with Associated Professional Photographers of Illinois, Edwardsville, Illinois (near St. Louis). For information: (800) 742-7468, (404) 522-3030.

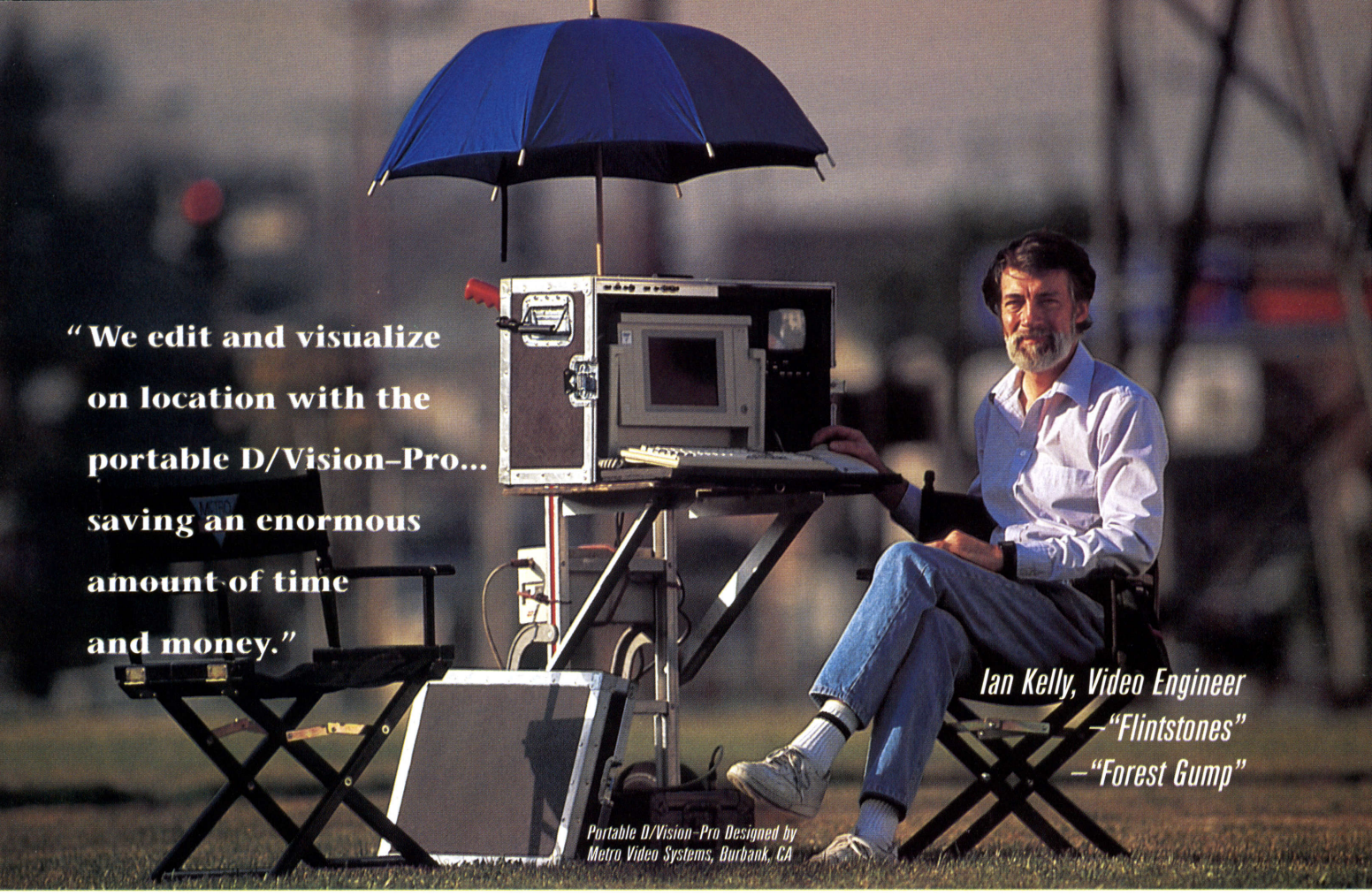
June 2-4, 1994: PhotoWest '94, Moscone Center, San Francisco. For information: (203) 852-0500, FAX (203) 838-3710.

June 6-12, 1994: The International Electronic Cinema Festival, Chiba-Montreux 1994, competition of HDTV programs and symposium on related events, displays and demos, Chiba, Japan. For information: Viacom International, Inc., (212) 258-6363, FAX (212) 258-6354.

June 8-19, 1994: 18th Atlanta Film and Video Festival, sponsored by Image Film/Video Center. For information: (404) 352-4254 or 352-4225, FAX (404) 352-0653.

June 14-16, 1994: Replitech International (conference and expo for duplicators and replicators of video and audio tape, optical disks and floppy disks), Santa Clara, CA. For information: (914) 328-9157, FAX (914) 328-9093.

June 16-18, 1994: Art Teco '94, a multimedia developers summit on the technical aspects of interactive development, presented by Morph's Outpost on the Digital Frontier, to be held at Cyberlab 7, San Francisco. For information: Tim Bigoness, Morph's Outpost, (510) 238-4547.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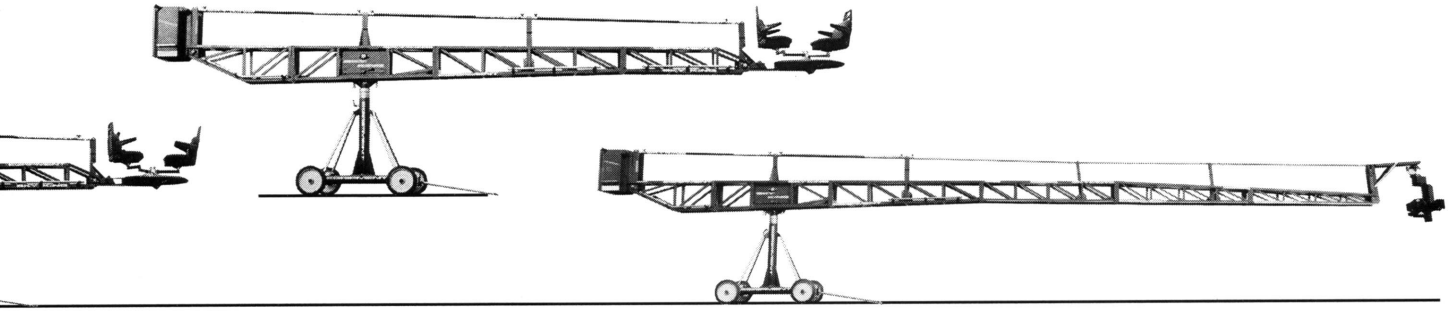

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Vice President Gore Augurs "National Information Infrastructure"

Call it what you will, but the communications network of the future is a revolution that must be reckoned with.

by David Heuring

When Alexander Graham Bell "went interactive" with Watson about 120 years ago, he planted the technological seed that grew into AT&T. The "Death Star," as AT&T is referred to in infotech circles (a tongue-in-cheek reference to *Star Wars* and the company's logo), is one of the big combatants in the current All-Star wrestling match over who will define, control and get rich from the vaunted "information superhighway."

On January 11, Vice President Al Gore climbed into the ring with an appropriately "show-biz" speech in Hollywood. Gore deserves eternal gratitude simply for giving us something else to call this phenomenon: the National Information Infrastructure, or "NII." (He didn't invent the term, but he's helped validate it.)

The highway metaphor has been flogged to the point where even non-English majors yearn for the days of grunting and cave-painting. It was never truly accurate or even representative, however. In the 1950s, the government used tax money to build the interstate highway system, ostensibly to facilitate commerce. In so doing, they changed the rural landscape of America. Strip malls grew like weeds; weeds grew in the cracks on Route 66.

By contrast, the confluence of technologies herded under the "superhighway" moniker will be privately funded, and rather than cars and people, anything that can be reduced to digital form will course back and forth along this thoroughfare. The current administration, meanwhile, claims to have a "get out of the way" policy; more on that later.

Another misleading but beaten-to-death misnomer is "the 500-channel universe." TCI's John Malone dropped that bon mot on a group of baffled reporters in an attempt to help them comprehend the general concept, and has regretted it ever since. The mass perception of NII has yet to recover from the blow. Today's conventional wisdom (see guideline number 8 below) has it that shortly, there won't even be channels as we know them.

Getting a handle on NII will continue to be troublesome, but here are a few guidelines (not signposts) to keep in mind:

1. Everyone has an angle (except us, of course).
2. Be suspicious of anyone who claims to have all the answers.
3. The great unwashed masses have a delightful way of confounding the experts (which makes observing this whole circus fun).
4. The technology exists. Economics is the last barrier standing between all of the talk and actual mass availability of much of what's been predicted.
5. If you build a better mousetrap, the world will beat a path to your door — unless some powerful conglomerate decides to eliminate you. They have the money, the lawyers, and the ability to generate deafening propaganda. They have thousands of Ph.D.'s doing research, "friends" in high places, and the strange (considering the Constitution) ability to claim that if you're not for them, you're unpatriotic.
6. Because a certain technology is "cool" doesn't mean it will succeed. The revolution will be content-driven.
7. "Content-driven" means "lowest common denominator" more often than it means "quality programming." Fiber vs. satellite may not be as important a question as *Jurassic Park* vs. Barney.
8. Today's conventional wisdom is tomorrow's idiotic babbling.
9. If information is power, the democratization of this technology, by definition, diffuses that power. The powerful have an interest in preventing this.

With all of this in mind, consider the recent "Superhighway Summit Conference," which took place on January 11 at Royce Hall in Westwood. The conference was sponsored by the Academy of Television Arts & Sciences and hosted by the UCLA Center for Communications Policy. It was conceived and organized by Academy president Richard Frank, who is also president of Walt Disney Studios.

The sold-out audience of 1,800 was a who's who of the film and TV industries, with additional representation from academia as well as computer, cable and phone companies. C-Span carried the day-long conference from beginning to end. The 30 panelists included Michael Eisner, Gerald Levin, Michael

Schulhof, Rupert Murdoch, Barry Diller, Jeffrey Katzenberg, Robert Iger, Lucy Salhanny, John Malone, and numerous other bona fide Hollywood and communications industry power brokers.

The highlight of the conference was Al Gore's speech, which is excerpted below. Gore made it clear that the long-term policy of the Clinton administration is to provide access for every interested content provider, as well as each home, school, hospital and clinic. He also outlined plans for legislation which would remove barriers for competition between cable and phone companies and other delivery systems. The vice president said the government would encourage the development of innovative technology which, it is hoped, would "sell as well in Tokyo as it does in Tennessee."

This loosening of governmental regulation could mean a lot of money to the right companies. In exchange for the right to compete, the administration demands universal access. Right now telephone companies are legally obligated to satisfy this criteria, while some of the others vying to control a piece of the pipeline are not.

Most of the other talk at the NII Summit consisted of careful positioning, spin control and prepared statements. Of those representing Hollywood studios, most notable was Michael Eisner, who pronounced that Disney, as a major content provider, did not feel compelled to own a piece of the pipeline in spite of the rush towards "vertical integration."

What is perhaps more intriguing to those in search of less speculative information is the outcome of the battery of tests going on around the country to determine the actual programming, interfaces, services and applications for which Americans are willing to pay.

About a week after the summit, Vincent Grosso, project director of Interactive TV for AT&T, arrived in Los Angeles for a meeting hosted by the Hollywood Section of the Society of Motion Picture and Television Engineers, chaired by Roy Brubaker, general manager of Foto-Kem Labs. Grosso described an interactive TV test that AT&T conducted in Chicago with families of 50 employees. In all, there were 140 participants.

A key finding was that "killer attributes" were in some ways more important than "killer applications," although a number of technology watchers maintain that convenient, day-to-day uses of these tools need to be developed to assure mass-market acceptance. Another interesting conclusion from the Chicago tests: nearly 75% of the participants never cracked the instruction manual. What people see when they turn on their television, and how they navigate and select options, had better be simple.

Grosso further discovered that both at the beginning and end of the test, people sat 14 feet away from the screen. They rarely got close enough for computer applications, and greatly preferred images to text. One finding that shouldn't surprise our readers: image quality was considered a very important attribute. "Photographic quality" was deemed essential, along with CD-quality audio and video multi-tasking capabilities.

Participants could watch a movie, play a game, look up the biography of an actor, order a pizza and check their voice mail messages without switching channels. For the most part, participants used the TV set for entertainment. They wanted movies on demand, and also sports and shopping, but they preferred tuning into more familiar sources for the news.

Grosso is convinced that "movies on demand" in an interactive environment will offer many options. Users will be able to buy movies with or without commercials, and pay more for the latter option. Surprisingly, in the AT&T Chicago test, more people opted to pay less and watch the spots, even if the savings was only 50 cents. In the future, multilingual soundtracks are a cinch. Viewers may also choose to watch movies edited for G, PG or R ratings, a kind of "progress" the Artists' Rights Foundation may want to keep an eye on.

> Today's technology has made possible a global community united by instantaneous information and analysis.
>
> — Vice President Al Gore

Excerpts from Vice President Al Gore's speech:

I join you to outline not only this Administration's vision of the National Information Infrastructure, but our proposals for creating it.

❧ ❧ ❧

Today I'll talk about the legislative package necessary to ensure the creation of that national infrastructure in a manner which will connect and empower the citizens of this country through broadband, interactive communication.

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Today's technology has made possible a global community united by instantaneous information and analysis. Protesters at the Berlin Wall communicated with their followers through CNN news broadcasts. The fax machine connected us with demonstrators at Tiananmen Square. So it's worth remember-

ing that while we talk about this digital revolution as if it's about to happen, in many places it's already underway.

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It's easy to see where we need to go. It's hard to see how to get there. When faced with the enormity and complexity of the transition, some retreat to the view best enunciated by Yogi Berra when he said, "What we have here is an insurmountable opportunity."

Not long ago this transition did indeed seem too formidable to contemplate, but no longer, because a remarkable consensus has emerged throughout our country — in business, in public interest groups and in government. This consensus begins with agreement on the right, specific questions we must answer together.

How can government ensure that the information marketplace emerging on the other side of the Big Crunch will permit everyone to be able to compete with everyone else for the opportunity to provide any service to all willing customers? How can we ensure that this new marketplace reaches the entire nation? How can we ensure that it fulfills the enormous promise of education, economic growth and job creation?

Today I will provide the Administration's answers to those questions. But before I do let me state my firm belief that legislative and regulatory action alone will not get us where we need to be. This Administration argued, in our National Performance Review last year, that government often acts best when it sets clear goals, acts as a catalyst for the national teamwork required to achieve them, then lets the private and nonprofit sector move the ball downfield.

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Let me be clear. I challenge you, the people in this room, to connect all of our classrooms, all of our libraries, and all of our hospitals and clinics by the year 2000. We must do this to realize the full potential of information to educate, to save lives, to provide access to health care and lower medical costs. Our nation can and must meet this challenge. The best way to do so is by working together. Just as communications industries are moving to the unified information marketplace of the future, so must we move from the traditional adversarial relationship between business and government to a more productive relationship based on consensus. We must build a new model of public-private cooperation that, if properly pursued, can obviate many governmental mandates.

But make no mistake about it — one way or another, we will meet this goal.

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As I announced last month, we will soon introduce a legislative package that aggressively confronts the most pressing telecommunications issues, and which is based on five principles. This Administration will:

1. Encourage private investment.
2. Provide and protect competition.
3. Provide open access to the network.
4. Take action to avoid creating a society of information "haves" and "have nots."
5. Encourage flexible and responsive governmental action.

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We begin with two of our basic principles — the need for private investment and fair competition. The nation needs private investment to complete the construction of the National Information Infrastructure. And competition is the single most critical means of encouraging that private investment.

I referred earlier to the use of the telegraph in 1860, linking the nation together. Congress funded Samuel Morse's first demonstration of the telegraph in 1844. Morse then suggested that a national system be built with federal funding. But Congress said no, that private investment should build the information infrastructure. And that's what happened — to the great and continuing competitive advantage of this country.

Today, we must choose competition again and protect it against both suffocating regulation on the one hand and unfettered monopolies on the other. To understand why competition is so important, let's recall what has happened since the breakup of AT&T ten years ago this month.

As recently as 1987, AT&T was still projecting that it would take until the year 2010 to convert 95% of its long-distance network to digital technology. Then it became pressed by the competition. The result? AT&T made its network virtually 100% digital by the end of 1991. Meanwhile, over the last decade the price of interstate long-distance service for the average residential customer declined over 50%.

Now it is time to take the next step. We must open the local telephone exchanges, those wires and switches that link homes and offices to the local telephone companies. The pressure of competition will be great — and it will drive continuing advancements in technology, quality and cost.

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To take one example of what competition means, cable companies, long-distance companies, and electric utilities must be free to offer two-way communications and local telephone service. To accomplish this goal, our legislative package will establish a federal standard that permits entry to the local telephone markets. Moreover, the FCC will be authorized to reduce regulation for telecommunications carriers that lack market power.

We expect open competition to bring lower prices and better services. But let me be clear: We insist upon safeguards to ensure that new corporate freedoms will not be translated into sudden and unjustified rate in-

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creases for telephone consumers.

The advancement of competition will necessarily require more opportunity as well, for the Regional Bell Operating Companies. Current restrictions on their operations are themselves the legacy of the break-up of AT&T and must be re-examined.

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Our view of the entry of local telephone companies into cable television also balances the advantages of competition against the possibility of competitive abuse. We will continue to bar the acquisition of existing cable companies by telephone companies within their local service areas. We need this limitation to ensure that no single giant entity controls access to homes and offices. But to increase diversity and benefit consumers, we will permit telephone companies to provide video programming over new, open access systems.

Even these measures, however, may not eliminate all scarcity in the local loop — those information byways that provide the last electronic connection with homes and offices. For some time, in many places, there are likely to be only one or two broadband, interactive wires, probably owned by cable or telephone companies. In the long run, the local loop may contain a wider set of competitors offering a broad range of interactive services, including wireless, microwave and direct-broadcast satellite.

But for now, we cannot assume that competition in the local loop will end all of the accrued market power of past regulatory advantage and market domination.

We cannot permit the creation of information bottlenecks that adversely affect information providers who use the highways as a means of supplying their customers. Nor can we can permit bottlenecks for information consumers who desire programming that may not be available through the wires that enter their homes or offices.

Preserving the free flow of information requires access, our third basic principle.

How can you sell your ideas, your information, your programs, if an intermediary who is also your competitor has the means to unfairly block your access to customers? We can't subject the free flow of content to artificial constraints at the hands of either government regulators or would-be monopolists.

We must also guard against unreasonable technical obstacles. We know how to do this; we've seen this problem in our past. For example, when railroad tracks were different sizes, a passenger could not travel easily from a town served by one railroad to a town served by another. But the use of standardized tracks permitted the creation of a national system of rail transport.

Accordingly, our legislative package will contain provisions designed to ensure that each telephone carrier's networks will be readily accessible to other users. We will create an affirmative obligation to interconnect and to afford nondiscriminatory access to network facilities, services, functions and information. We must also explore the future of non-commercial broadcasting; there must be public access to the information superhighway.

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This Administration will not let existing regulatory structures impede or distort the evolution of the communications industry. In the information marketplace of the future, we will obtain our goals of investment, competition and open access only if regulation matches the marketplace. That requires a flexible, adaptable regulatory regime that encourages the widespread provision of broadband, interactive digital services.

That is why the Administration proposes the creation of an alternative regulatory regime that is unified, as well as symmetrical. Our new regime would not be mandatory, but it would be available to providers of broadband, interactive services. Such companies could elect to be regulated under the current provisions of the Communications Act or under a new title, Title VII, that would harmonize those provisions in order to provide a single system of regulation.

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This new method itself illustrates one of our five principles — that government itself must be flexible. Our proposals for symmetrical, and ultimately unified, regulation demonstrate how we will initiate governmental action that furthers our substantive principles but that adapts, and disappears, as the need for governmental intervention changes — or ends. They demonstrate, as well, the new relationship of which I spoke earlier — the private and public sectors working together to fulfill our common goals.

The principles that I have described thus far will build an open and free information marketplace. They will lower prices, stimulate demand and expand access to the National Information Infrastructure. They will, in other words, help to attain our final basic principle — avoiding a society of information "haves" separate from a society of information "have nots."

There was a *Washington Post* headline last month: "Will the 'Information Superhighway' Detour the Poor?"

Not if I have anything to do about it. After all, governmental action to ensure universal service has been part of American history since the days of Ben Franklin's Post Office. We will have in our legislative package a strong mandate to ensure universal service in the future — and I want to explain why.

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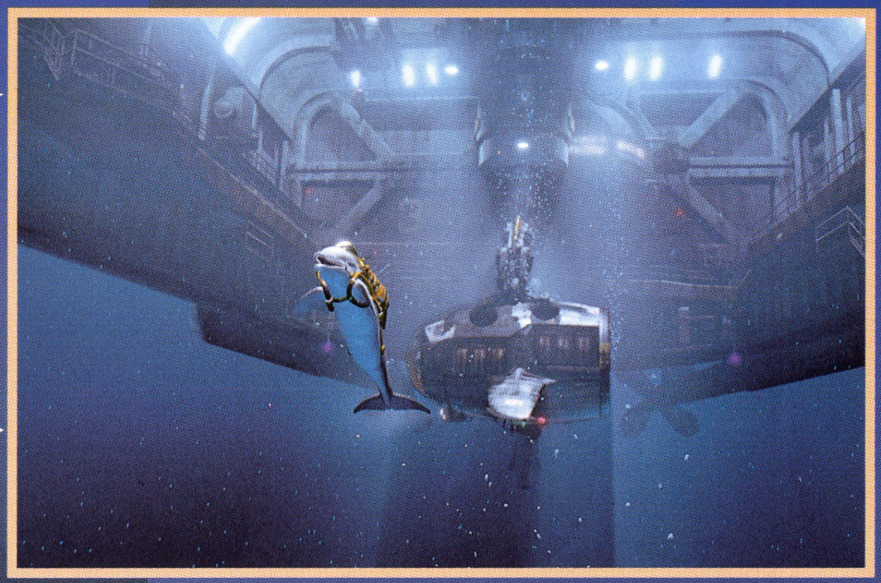

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quarters of households contain a VCR, about 60% have cable, and roughly 30% of households have personal computers. As the information infrastructure expands in breadth and depth, so too will our understanding of the services that are deemed essential. This is not a matter of guaranteeing the right to play video games. It is a matter of guaranteeing access to essential services.

We cannot tolerate — nor in the long run can this nation afford — a society in which some children become fully educated and others do not; in which some adults have access to training and lifetime education, and others do not.

All this won't be easy. It is critically important, therefore, that all carriers must be obliged to contribute, on an equitable and competitively neutral basis, to the preservation and advancement of universal service.

The responsibility to design specific measures to achieve these aims will be delegated to the Federal Communications Commission. But they will be required to do so. Our basic goal is simple: There will be universal service; that definition will evolve as technology and the infrastructure advance; and the FCC will get the job done.

Reforming our communications laws is only one element of the Administration's NII agenda. We'll be working hard to invest in critical NII technologies. We'll promote applications of the NII in areas such as scientific research, energy efficiency and advanced manufacturing. We'll work to deliver government services more efficiently. We'll also update our policies to make sure that privacy and copyright are protected in the networked world.

As we move into the new era, we must never lose sight of our heritage of innovation and entrepreneurship.

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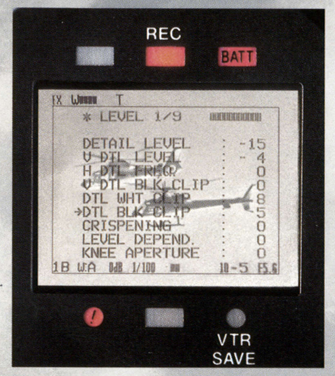

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Large Format Expands *Little Buddha*

Bertolucci and Storaro reunite on epic film that combines 35mm anamorphic scenes with 65mm footage.

by Bob Fisher

At a January presentation at the Academy of Motion Picture Arts and Sciences, the Technology Council of the Motion Picture-Television Industry demonstrated to an audience of some 400 filmmakers and students the aesthetic and technical differences of six different film formats, including Super 16, 65mm, and the four most popular 35mm formats. The seminar was capped with a presentation by cinematographer Vittorio Storaro, ASC, AIC, who previewed two scenes from *Little Buddha,* a Bernardo Bertolucci film scheduled for early summer release by Miramax Films.

The first scene, shot in 35mm anamorphic format (2.4:1 aspect ratio) was an intimate, contemporary scene filmed in a church in Seattle, where a Buddhist holy man is introduced to a boy and his mother. The second scene, set in India some 2,500 years ago, depicted the young Buddha, Siddhartha Gautama of the Sakyas, skirting the ugliness of poor village life by travelling on a private road his wealthy father has built for him. Shot in 65mm (2.2:1 aspect ratio), the images in this second sequence were incredibly sharp, bringing out even the distant horizons which seem many miles away. Pristine and devoid of grain, the colors lushly saturated, the spectacular visuals brought a hush over the audience.

After the two scenes were presented at the film seminar, Storaro told the audience that he believes the 65mm format will take filmmaking to a higher plane in the HDTV era. He also surprised everyone by announcing his intention to work on feature projects only in 65mm.

Storaro's extraordinary decision to combine formats in *Little Buddha* came about as he debated how to handle the two stories being told concurrently in the movie. The first depicts the life of the original Buddha, while the second explores the relationship between a contemporary Buddhist and a boy he suspects to be Buddha's second coming. Early in the film, the story of Buddha is interjected sparingly, via flashbacks. However, the two stories soon parallel each other, and the visual contrast between the past and present is an important element of the film's pictorial grammar.

In a more traditional film, the flashback sequences would be dreamlike and somewhat softer and hazier than the contemporary content of the film. In the case of *Little Buddha,* however, Storaro felt it was important for the audience to see the scenes as being bigger than life.

"When I explained my idea for shooting the flashback sequences in 65mm format, Bernardo became very excited," Storaro says. "He immediately recognized how the contrast in the quality of images would become part of the story."

Based on a concept developed by Bertolucci and produced by Jeremy Thomas, *Little Buddha* is Storaro's third collaboration with the duo, following *The Last Emperor* and *The Sheltering Sky.* Bertolucci and Storaro

Photos by Laurie Sparham, Richard Blanshard, Basil Pao and Angelo Novi, courtesy Miramax Films

Produced by Jeremy Thomas
Directed by Bernardo Bertolucci
Director of photography,
Vittorio Storaro, ASC, AIC

This page, top: *The elder Konrad (Chris Isaak) and his son (Alex Wiesendanger) begin their spiritual journey.* This page, bottom: *Storaro examines his artistic options.* Opposite: *The colorful pageantry lavished upon Siddhartha (Keanu Reeves) is presented in 65mm.*

The Konrad men share a moment as the enlightened (and appropriately illuminated) Lama Norbu (Ying Ruocheng) and Champa (Jigme Kunsang) observe.

have worked together for almost 30 years; their collaboration began when Storaro was a 23-year-old assistant cameraman just getting his career underway on the director's *Before the Revolution*. Storaro has also photographed Bertolucci's *The Conformist*, *Last Tango in Paris*, *1900* and *Luna*.

The plot of *Little Buddha* revolves around Lama Norbu, an aging holy man, who believes that his master, Buddha, may have been reborn. While visiting with three possible candidates in Seattle, Nepal and India, Norbu tells the story of Buddha. The film's cast includes Keanu Reeves as Siddhartha; Chris Isaak, Bridget Fonda and Alex Wiesendanger as the Konrad family; and Ying Ruocheng and Jigme Kunsang as, respectively, Lama Norbu and his aid, Champa.

"It's a story within a story," Storaro explains. "When Norbu talks about Buddha, it is as if he is opening a beautifully illustrated storybook. We wanted it to be a perfect world seen through the eyes of a child."

Storaro, Bertolucci and costume/production designer James Acheson discussed a visual frame of reference inspired by highly-detailed and colorful 19th-Century miniature paintings by Indian artists, depicting the life of Buddha. But the decision to shoot the Buddha sequences, which make up about one-third of the 139-minute film, in 65mm format wasn't made until live-action photography was underway in Kathmandu in Nepal. Storaro explains, "One evening very early in production, we were looking at dailies, and they were really quite good. When the lights came on, I asked Bernardo how we were going to photograph perfect images during the sequences depicting the life of Buddha."

Storaro, of course, already had a solution in mind; he had previously tried to persuade Warren Beatty to film *Dick Tracy* in 65mm. "I was convinced that [*Dick Tracy*] deserved a bigger canvas to express all of the tonal and figurative nuances, and all of the subtleties of character," he says.

Storaro shot a number of tests with the new Arri 765 camera before Beatty decided to film *Dick Tracy* in 35 anamorphic format. But the cinematographer, who had shot the 3-D special-venue feature *Captain EO* in 65mm, was convinced that many of the old concerns about shooting in 65mm format were no longer relevant.

Bertolucci and Storaro had for many years talked about producing an epic film about the life of Buddha, and had always assumed it would be filmed in 65mm, but their original project was shelved when financial backing fell through. Bertolucci decided to follow a different path with *Little Buddha*, a contemporary story focusing on the relationship between Lama Norbu, Jesse and his parents. However, Bertolucci and Thomas felt that shooting *Little Buddha* entirely in 65mm would be too costly and would make camera movement and lighting requirements too restrictive.

Storaro makes an eloquent plea for riding the 65mm format as a vehicle to the future of moviemaking, pointing out that at the beginning of the film industry, roughly 100 years ago,

Louis and Auguste Lumiere and other industry pioneers never meant to restrict visual storytelling to a 35mm frame. The Lumieres experimented with 75mm film, and various other wide film formats also existed at the time; in 1899, Hopwood's Living Pictures catalog listed cameras and projectors that were available in nine different widths.

The 35mm format became a de facto standard around 1913, partially on the basis of a handshake agreement between George Eastman and Thomas Edison, who wanted to standardize production and distribution for economies of scale. There was a resurgence of wide film formats in Hollywood from the mid-1920s through the early 1930s, and virtually all of the studios had their own formats, ranging in gauge from 55mm to 70mm. Research and development slacked off during the Depression, but wide-screen filmmaking came back in a big way in the 1950s, in direct response to the erosion of box-office receipts because of the rising popularity of television. (Hollywood tried 3-D filmmaking first, but it proved to be a short-lived gimmick.)

The modern era of wide-screen filmmaking began in 1952 with *This is Cinerama*. There was another flurry of specialized formats, which included Cinemascope, VistaVision, Todd-AO and Technirama. In 1956, Panavision developed Camera 65 for MGM; it was first used during the filming of *Raintree County*. Panavision soon contributed another key technical advance in developing spherical 65mm lenses, which eliminated the "fat faces" syndrome that had plagued earlier CinemaScope films.

Some 40 blockbuster or roadshow films, as they were called, were filmed in wide-screen formats during this period, including *Oklahoma!*, *Around the World in 80 Days*, *The Sound of Music*, *Lawrence of Arabia*, *The Alamo*, *Exodus*, *My Fair Lady* and *South Pacific*. But wide film formats floundered due to the deadly combination of expense, unwieldy cameras, and slow film stocks and lenses; the curtain finally came down after the release of *Ryan's Daughter* in 1970. And after Panavision's Bob Gottshalk invented a set of 35mm anamorphic lenses which could be used in conjunction with much more mobile cameras to squeeze a wide-screen image onto theatrical screens, film technology improved to the point where quality 70mm prints could be blown up from 35mm negatives.

During the late 1980s and early '90s, there were dramatic breakthroughs in 65mm camera and lens technologies, driven by the rising popularity of special venue theatres at theme parks, world's fairs and expositions, and now, hotels and shopping centers. One of the only theatrical features shot in 65mm format since *Ryan's Daughter* was Ron Howard's *Far and Away*, photographed by Mikael Salomon, ASC. There was much hope at the time that other wide-screen films would follow in its wake, but *Far and Away* faltered at the box office. Nevertheless, Storaro believes that the return of 65mm is inevitable, and he intends to be in the front ranks of filmmakers working in the format.

On *Little Buddha*, Storaro ultimately convinced Bertolucci that the mobility of modern 65mm cameras, combined with advances in lens and film technology, would eliminate creative compromises in movement or lighting. He would shoot the 65mm scenes exactly the way he had planned to film them in anamorphic 35 format. In some ways, in fact, the format gave him even more more creative freedom.

"The 65mm lenses we used are spherical," he says. "There are limitations in rack focusing with an anamorphic lens, particularly on moving shots, and there is always some distortion." But the advantage Storaro most savored was the vast improvement in image quality. The image area on a 65mm frame is approximately six times larger, and the pictures aren't squeezed through the extra glass element present in anamorphic lenses.

"We are being honest with the audience when we tell them this is a 70mm film," he

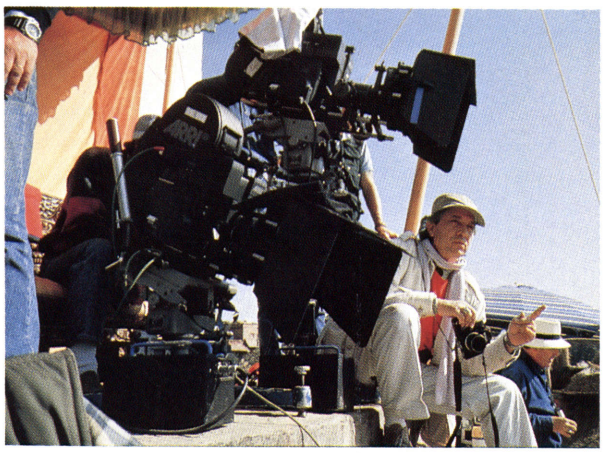
Storaro's lighting is combined with geometrical set design to create an otherworldly ambience.

Above: ***Siddhartha reposes near a reflecting pool, under the watchful gaze of young Jesse.*** **Right:** ***A master and his machines.***

says. "We are fooling them when we make 70mm prints from 35mm anamorphic negatives. My heart was bleeding when I saw the intrusion of grain into 70mm prints of *The Last Emperor*."

Storaro still had to convince producer Thomas, who had questions about the higher cost of shooting so much of the film in 65mm, and who was also concerned about possible delays in the already hectic production schedule. Storaro assured him that no extra time, crew or equipment was necessary. The cinematographer notes, "People remember the stories they heard about the limitations in the 65mm format 20 years ago," when cameras were cumbersome and weighed hundreds of pounds, lenses were bulky and slow, and color film speeds were limited to an exposure index of 100 in tungsten light. "Today, there are no such limitations. The Arri 765 cameras are somewhat larger than their 35mm counterparts, but they impose no limitations on movement."

As soon as Thomas concurred, Storaro made calls to Arriflex, Technicolor and Kodak. Despite the short notice, all three companies cooperated. Three Arri 765 cameras were shipped within days, along with a full complement of lenses in 40, 50, 60, 80, 100, 250 and 350mm focal lengths. Arriflex, which makes a policy of encouraging more 65mm production, also remounted Technovision lenses, which Storaro used to differentiate image quality in some scenes, for use with the 65mm cameras. The company also provided a number of other special devices, including adapting a Technovision matte box for use with the Arri 765s, and adapting the camera plate to fit the Vinten fluid head. In addition, two technicians (Manfred Jahn, from Arri-Munich, the rental company, and Arri Austria's Thomas Smidek, an expert in the electronic components of the 65mm cameras) were sent to the location to assist Storaro's crew on any technical issues.



Kodak, meanwhile, shipped an ample supply of Eastman EXR 5296 and 5293 film in 65mm format (the respective exposure indices are 500 and 200 in 3200 Kelvin tungsten light). Storaro notes that the availability of high-speed, low-grain films contributes significantly to the freedom of working in the 65mm format. Every visual detail is obvious to the audience when 70mm prints are projected on a large screen, allowing no margin for error, and the cinematographer must pull deep stops to maintain sharp depth of field.

Twenty years ago, proper exposure of 65mm film required approximately four times more light than 35mm, and this rough equation dictated much of the visual content of 65mm films made during that period. Today's films, says Storaro, "are so sensitive they are capable of registering all of the emotions and energy of everyone, including the actors, director and cinematographer. The 5293 film records less grain and a wide range of tonality, and it is fast enough for deep focuses. I used the 5296 film in situations where we needed even more sensitivity to light — for example, in the forest where Buddha was born."

The cooperation of the lab was another essential ingredient in the visual strategy. Negative from scenes filmed in Nepal was processed at Technicolor in

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Having taken full advantage of a magnificent structure, Storaro adds the final touch: a brooding sky.

Rome, while film from the Seattle location photography was processed at Technicolor in Los Angeles. Other work was processed in London, indicating a tremendous trust in the consistency of the processes at these different facilities. Storaro first used the E.N.R. process (named for Ernesto N. Rico, a chemist in the Technicolor Rome lab) during the early 1980s on *Ladyhawke.* Technicolor Vice President Frank Ricotta describes it as a proprietary process, which leaves more of the silver in the print film when it is processed. This results in blacker blacks, heightens sharpness, and brings out more details in shadow areas without compromising the purity of whites or the vividness of colors.

Since the E.N.R. process involves the print film rather than the negative or intermediates, it afforded Storaro the opportunity to orchestrate image quality, enabling him to fine-tune pictorial elements of the dailies and, ultimately, the release prints in his quest for the perfect image.

The Arri 765 cameras arrived in Kathmandu on schedule, but Storaro's crew still had only one evening to familiarize themselves with the new equipment. Other than the fact that the 765s are somewhat heavier and a bit more cumbersome than the Arri 535 cameras, most features are the same. When the team began using the 65mm cameras the next day, few people in the cast and crew were even aware of the transition.

"We didn't make any changes in lighting, camera movement or composition," says Storaro. "There were few limits imposed by the cameras. The crew easily lifted them on and off of dollies and cranes." The main concession was switching from Chapman PeeWee to sturdier Chapman Hybrid dollies to accommodate the heavier weight of the cameras. Everything else was the same, even the Vinten gearheads.

One of the significant challenges for Bertolucci and Storaro in translating the story of Buddha to film was finding ways to bridge the cultural gap between Eastern and Western audiences. Buddha is the spiritual leader of billions, but remains an enigma to Westerners, who find it difficult to grasp the concept of someone who was neither saint, angel, nor god, but considered himself "the awakened one."

The story of Buddha, as related in the film, begins around the year 560 B.C. in northern India, where Siddhartha, the son of a powerful nobleman, is born. Seers predict that the infant Siddhartha will become either a general who conquers and unifies India, or a philosopher who becomes a spiritual leader of the world. His father is determined that Siddhartha will eventually follow in his footsteps as a ruler, and creates a sheltered environment for his son to deter him from following a spiritual path. However, his father ultimately fails to shield him from the uglier aspects of existence, and at the age of 29, after witnessing old age, pain, poverty, and death for

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the first time, Siddhartha begins searching for the meaning of life.

He subsequently spends time with Hindu yogis and a band of ascetics, but neither group has the answer he seeks. Finally, Siddhartha decides that meditation is the path to enlightenment. He continues his wanderings for six more years until he comes upon the Bo (fig) tree, and vows not to leave that "immovable spot" until his meditation leads to enlightenment.

In a surreal visual effects sequence (see Production Slate, p.14, for details), Mara, the lord of darkness, attempts to distract Siddhartha. He conjures up a violent storm, rains fireballs down on Siddhartha, and unleashes an army of flame-throwing archers upon him. Mara finally uses his own daughters in an attempt to seduce Siddhartha. Siddhartha emerges from this cosmic experience as the Buddha, and spends the next 45 years as a teacher and spiritual architect of one of the world's great religions.

The visual strategy devised by Storaro and Bertolucci divided *Little Buddha* into four elements, which are unified by the presence of Lama Norbu and three children. Each of the children is represented by a different color: red, green and blue. Storaro explains that these colors are psychological symbols for fire, water and air, respectively, which the ancient Greek philosophers defined as three of the four main elements of life. The fourth element is heart, which is represented by Lama Norbu. After these elements are combined, and there is a balance, Storaro finally shows the audience the purity of white light.

Storaro believes that colors speak to the audience with silent words. "There is no doubt that every color is a specific wavelength of energy that can represent or symbolize a time or life or emotion," he says. At the core of his philosophy is his belief that "visually, movies are the resolution of a conflict between light and shadows. Light reveals truth, and shadows obscure it, with a broad base of tonality in between."

In his command of filmmaking grammar, Storaro is inordinately eloquent. For example, in *Little Buddha,* he used older Technovision lenses in some scenes where he wanted a warmer look, almost plastic in texture. Storaro explains that newer lenses record sharper, colder and more defined images.

This kind of meticulous craftmanship has made Storaro a living cornerstone in the art of cinematography. He has won three Oscars (for *Apocalypse Now, Reds* and *The Last Emperor*), a feat that places him in an exclusive group with Freddie Young, BSC, Winton Hoch, ASC, Robert Surtees, ASC, and Arthur Miller, ASC. (Only Joe Ruttenberg, ASC, and Leon Shamroy, ASC, earned four Oscars.)

Each of these other cinematographers, however, compiled well over 100 feature credits while working under studio contracts. Storaro, still only 53, has some 40-plus feature credits, and tends to be both eclectic and selective in his choice of projects. His resumé includes special venue projects *(Captain EO),* TV mini-series*(Peter the Great)* and a recently completed 15-hour documentary on the history of Rome.

Storaro was born in that city in 1940, the son of a projectionist at Lux Films. He still has vivid memories of sitting by his father's side watching dailies day after day. "My father put the dream of working as a cinematographer into my heart," he says. Storaro was enrolled at the Duca D'Aosta technical photographic institute at the tender age of 11. He received a master of photography degree five years later. At that juncture, he began an apprenticeship at a photographic studio, and subsequently continued his education at the Centro Sperimentale di Cinematografia in 1960.

After working as an assistant cameraman for about a year, Storaro became an operator at the age of 21. In 1963, however, the Italian film industry ground to a halt. Literally no films were being made, and there were no jobs. Storaro used the time to augment his education. He spent two years studying the arts, including literature, movies, painting and sculpture. What he learned made a profound impact on his thinking about his art form, and on his understanding of the nature of light and color.

Storaro went back to work on *Before the Revolution,* which was his first contact with Bertolucci. He shot his first feature, *Giovinezza, Giovinezzi,* in 1968. A year later, he worked with Bertolucci as a cinematographer for the first time on a film called *Strateglia del Ragno.* In 1970, the duo collaborated on *The Conformist,* which elevated both to international stature among their peers.

With *Little Buddha,* the pair continue what Storaro refers to as their "lifelong journey" together. "Someone asked me recently how long I prepared for shooting the story of Buddha," he offers. "I said 53 years — my entire life. You are influenced by everything, not just the films you shoot, but also by all of your other experiences. You can't make a film like this and not question your own life — your own impermanence, who you are, where you are going, and what enlightenment means to you.

"I woke up every day thinking I would take another step toward understanding the meaning of my life, and that was a wonderful experience. It's a journey you never complete. It is one thing to do research and to find a better way to record an image; that is something you do consciously. It is an entirely different experience when you discover something new at the moment of photography. Filming *Little Buddha* made me more conscious of that."

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Photos courtesy of Shapiro Glikenhaus Entertainment and Alik Sakharov

Midnight Edition: Making Art While Making Ends Meet

Part one in a two-part series that examines independent production on the East Coast, from shooting through distribution.

by Brooke Comer

Howard Libov hired Alik Sakharov to shoot *Midnight Edition* before the cinematographer had even read the script. The film, about an investigative reporter whose interview with a murder suspect leads to psychotic hallucinations, was budgeted for $750,000. Set on location in affordable Atlanta, Georgia with a 23-day shooting schedule and 17 days of prep, Libov's project looked feasible. But he had a stylized film in mind, and needed a strong director of photography who could be creative, yet work within the style and form he envisioned. Enter Alik Sakharov.

Sakharov developed his sense of style from the Byzantine architecture in his native Moscow and from the great Russian filmmakers — Andrei Tarkovsky, Alexander Dovzhenko, Dziga Vertov, Sergei Paradjanov and Tenghiz Abuladze. "Architecture is a very important part of my cinema," says the cinematographer, who emigrated to America in 1981. "I always try to frame scenes for architectural value." He was also influenced by Michelangelo Antonioni, "who never composed for people but for architecture, for which people were an essential element." He shot buildings, portraits, and "lyrical landscapes" with the still camera his parents gave him "to keep me off the street."

Comprehensive photography classes in the Russian after-school system taught Sakharov not only the art of shooting, but its technique and science. Then he combined his interest in cameras with his fascination for movies. Danilo Demutsky, the cameraman on Dovzhenko's *Earth*, had an impact on Sakharov while he was still a teenager "that took me years to resolve. The images in that film spoke to me so profoundly that I had to find a way to respond."

American cinema was closed to Russians then (except for a few select films, intentionally chosen to depict the evils of a capitalist system). Sakharov's filmic sensibilities were weaned on Tarkovsky's "poetic cinema," and his ambitions were inspired by the director's cinematographers, Vadim Yousov, Georgi Rerberg and Guiseppe Lanci. "Tarkovsky's *Mirror* takes you on a direct route into the subconscious," says the cinematographer. And Abuladze's *The Prayer*, shot by Alexander Antipenko, influenced not only Sakharov but an entire generation of young Russian cinematographers.

The Prayer was shot in CinemaScope, and though Sakharov had seen many CinemaScope films before this, "What absolutely knocked me out was the way Antipenko used the frame and the way he composed images. He used the frame very much the way painters do when they portray something in cameos. He would accentuate people's faces against very lyrical backgrounds, and do anything possible to keep people out of the center of the

frame. I found it very unorthodox but visually riveting. He used his understanding of the frame rather than just pointing and shooting. Whenever I watch his films, I sit on the edge of my chair. Antipenko elevated framing to the level of art and his cinematography became a true artist's medium."

When Sakharov came to America he found new inspirations in Orson Welles, Stanley Kubrick, Francis Ford Coppola, and the Coen Brothers. He also found new skills, a new language, and eventually a new kind of work. The documentaries he'd made in Russia, with titles like *Soldier On Guard, This Is My Motherland* and *Forward, March!* were a far cry from the Richie Stevens video and Stevie Wonder documentary he did for Motown Records. "I knew it would take a long time to break into the business," he admits. The cinematographer shot industrials and 16mm work until he got his first break on John Raffo's *Big and Mean*, a New York independent.

Midnight Edition gave Sakharov exactly the kind of challenge he loves. The tense, sparsely-worded drama used light, or lack of it, to carry emotion. During his 28-minute interview with Libov, the two didn't even discuss the script. "We talked about Bertolucci," Sakharov recalls. After Sakharov was hired, Libov sent him a script and instructions to watch *At Close Range*, which captured the level of intensity the director was aiming for.

Libov was also receptive to the cinematographer's creative input when Sakharov suggested stylizing the film even further by borrowing from '60s and '70s Italian cinema and German expressionist lighting. "I wanted all the compositions to look very deliberate. Sergei Eisenstein, for some time, was infatuated with the theory of frame division. According to subconscious analysis, human beings scan the image from left to right, much the way we read. Eisenstein decided the right side of the frame was always stronger than the left. Furthermore, he divided the frame by quarters; thus, the lower left corner of the frame became the weakest point and was associated with loss or death. The upper left was associated with struggle, the upper right with meditation and contemplation, and the lower right with victory. Using that basis for analysis, I applied this theory to *Midnight Edition*."

During the 17 days of prep, Sakharov studied the script "and visualized the hell out of it." There might not have been a big budget or a lot of time to shoot, but Libov and Sakharov, working in close collaboration, made the most of angles, lenses, shots and film stock. Producer Udy Epstein had told the cinematographer that he wanted visuals that

Opposite: ***While shooting the film's escape sequence, Sakharov used silhouettes and smoke not only to heighten the drama, but also to obscure a barren landscape and production trucks that no one had time to move off-camera.*** **This page, top:** ***The young drifter Daryl (Michael DeLuise) wanders along the dirt road of his destiny.*** **Bottom:** ***Disturbed by hallucinations, an armed Jack (Will Patton) finds himself becoming a danger to his daughter (Nancy Moore Atchison).***

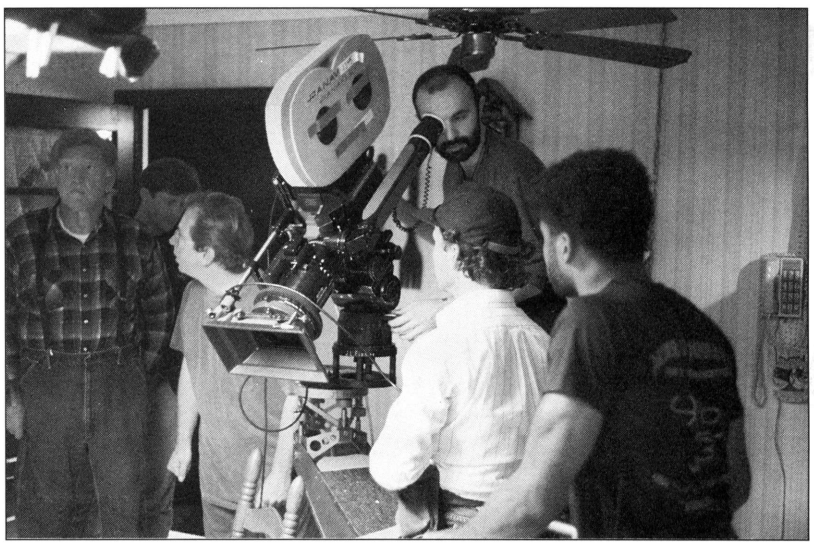
Produced by Udy Epstein
and Jonathan Cordish
Directed by Howard Libov
Director of photography,
Alik Sakharov

Above: ***Sakharov and crew members in cramped quarters.*** **Right:** ***As Sakharov checks his frame, director Libov (next to camera at left) offers a suggestion to an actor. To the right of the camera are first assistant David Paone (in white shirt) and key grip Jasper Johnson.***

looked like they'd cost four times the actual budget. "It was a challenge," admits Sakharov, "but one I enjoyed. I immediately realized that while I may not have an unlimited budget, I have an unlimited imagination. I have a frame, and my accent is going to fall on composition." He explained his idea to Epstein, who promised to get him whatever tools he needed.

The first item on the list was a Panaflex G-II with Primo lenses. The lenses ranged from 14mm to the Primo 5:1 zoom lens, the Cooke 10:1 lens and the Nikon 200mm prime lens. "We got it all so that I could match lenses and shoot a little test beforehand," the cinematographer says.

"We couldn't afford a big lighting package," explains Sakharov, who was allowed to choose one 12K, one 6K and two 4K HMIs with two 1200 Pars and one 2500 Par. The rest of the lighting consisted of a very small tungsten package: four 2K baby juniors, four 2K blondes, four 1K solar spots and six Inkys. "Even though that was all we had to work with, it served me well, except for two scenes where everything had to come together — style, form, lighting, framing, everything." Then Sakharov had to use his resources.



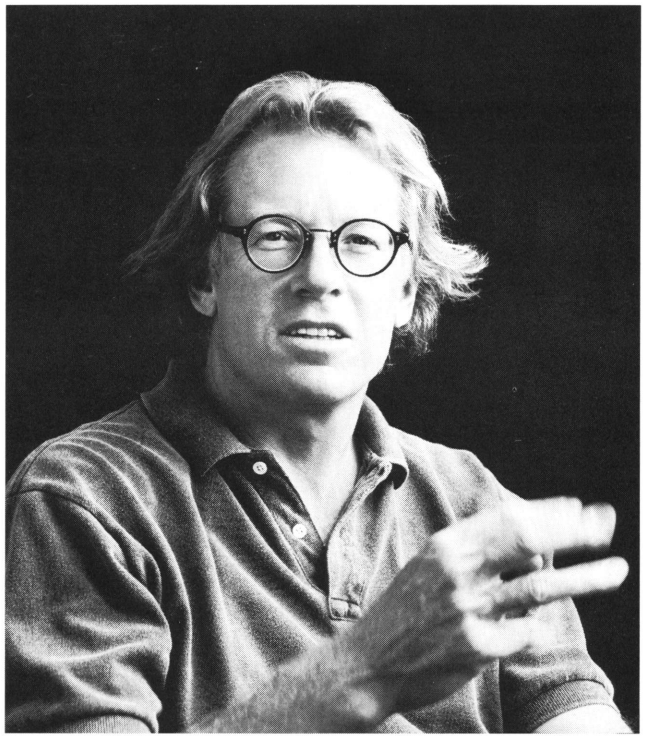
In one of these scenes, investigative reporter Jack Travers (Will Patton) heads to a prison to visit a young drifter, Daryl (Michael DeLuise), who has been accused of murdering a farm family. Sakharov decided he needed overhead units and built them himself, with help from gaffer Andy Clark, assistant David Paone, and key grip Jasper Johnson, the three-man team he'd flown down from New York.

"I borrowed Gordon Willis' idea of an overhead box light," the cinematographer explains, "and we basically built four-by-eight coffin boxes equipped with 8,000 watts per box, then hung them overhead." That gave him the top light he needed to induce a heavy, suppressed feeling, "with shadows and eye sockets built into the backs of the heads, so you don't see what's going on in their eyes much." He also chose to give the background light a bluish tinge by using all of the powerful HMIs to create a very sculpted wash of light. "I wanted to simulate a ray of sun seeping through, casting very sharp, distinct shadows." To make sure his stylized vision jibed with Libov's ideas, Sakharov shot some Polaroid tests. "And he thought it looked heavy [enough.] He said, 'Let's do it!'"

When Jack first interviews Daryl, Daryl recounts in detail the events that led to the killings. Daryl speaks over flashbacks of the murder scene, as the farm family is killed. "The scene was slowed down optically to get a really creepy look," says the cinematographer.

Another eye-catching scene involved Daryl's escape from prison, aided by his new friend Jack. The two men appear

Eric Saarinen has been directing TV commercials since 1985, for such clients as Coca Cola, Kodak, Jamaica Tourism, Jeep, Levis, Mercedes Benz, Miller Beer, Porsche and Reebok. He won the 1990 Eastman Kodak Clio Award for Best Cinematography; and he was named 1990 Director Of The Year by Adweek. He is a partner at Plum Productions.



"At Clairmont, they don't just tell me what they have. They ask me what I'll need; then they design and build it," says Director/Cameraman Eric Saarinen

"For a deBeers diamonds commercial, I needed to romanticize reality to an extreme degree—on the underlying assumption that people who buy diamonds as gifts are temporarily out of their minds," says Eric Saarinen.

Great distortion

"I taped a single-element diopter to a bellows and shot some tests with a Nikon. Huge amounts of spherical and chromatic distortion and flare, which was great. But no focussing, no iris, no marked f/stops. When I took the idea to Clairmont, Denny and his people took an immediate interest."

Custom rig

"They machined links so we could join two different kinds of Nikon bellows system together. And they built bridge adapters, to mount those different bellows onto extra-long ARRI rods. They put PL mounts on one end of the bellows, 52mm filter threads on the other."

Free testing

"I spent several days at Clairmont, experimenting and testing, with their help. They let me use one of their cameras, to shoot tests in a rose garden. No charge."

Stacked diopters

"By altering the bellows length and stacking various 52mm diopters, I got different focal lengths. The f/stop was bellows length divided by lens diameter. We focussed and framed by moving the camera and bellows back or forward until the image was the right size and as sharp as it would ever be."

Wooden case

"It became quite an elaborate system. Clairmont put it all in a foam-cutout wooden case for me. Probably about fifty parts, including positive and meniscus diopters, 85 and ND filters, rods, adapters, tape measures and so on."

Impressionist

"We shot people and scenics in Germany and the South of France. People at sidewalk cafes, on cobbled streets at night. The results were suitably impressionistic and romantic."

Helpful

"That job was just one of many on which I got singular help from Denny," says Mr. Saarinen. "Clairmont takes over where the others leave off."

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Above: ***Source lighting lends mood to a confrontation.***
Right: ***Jack and his wife (Claire Wren) find their relationship heading into a dark limbo evoked by Sakharov's spare lighting.***

as black silhouettes, striding in what seems like slow music-video motion into a sea of picturesque smoke. The smoke was the cinematographer's choice, not only as an aesthetic consideration, but as a way to hide a barren landscape and production trucks that no one had time to move off camera.

Sakharov had to get the shot in 30 seconds, so he asked his gaffer to put 1200 Pars on pigeon boxes for backlight into the gate area to hide the barrenness. "We also needed smoke so that the men could disappear into it," he notes. That also worked with the storyline, as Jack's identity becomes so confused he actually hallucinates a reenactment of the murder in which he, not Daryl, kills the farm family — a hallucination that helps convince him Daryl is innocent.

In scenes where Jack is shown with his wife (Claire Wren) and young daughter (Nancy Moore Atchison), Sakharov used "more realism, because they're normal people, not murderers or hallucinations, and they deserve to be shot in normal light, whereas Jack was a person of many different feelings."

To help create Jack's deeply disturbed state of mind in a scene in which he is brooding in his darkroom, a gun in his hand, Sakharov placed the light slightly behind him, casting deep, heavy shadows and barely revealing his eye sockets. "There was just a glimmer of something in his eyes," he says. Then, suddenly, the door opens and a sidelight washes over his face. As his daughter enters, Jack is still so far away in his mind that he points the gun at the little girl. "To me, this was a person who had to be portrayed in many different lighting conditions," explains the cinematographer. "He's going through a stage in his life where he's experiencing many different moods and feelings. His character is in a state of development." Sakharov helped reveal that development by using "a very German, expressionistic look," and at other times "getting a totally warm look."

Jack tells his newspaper publisher that he's envious of the way Daryl, the killer, has protected himself. Sakharov realized that was "a very dark moment," epitomizing Jack's character's emotional descent as his identity begins to disintegrate. Accordingly, the cinematographer tried to create a sense of limbo. "I shot against black with one Inky as a sidelight, with a little amber gel. And that was all there was to it. One Inky for Jack, and one for his publisher. When they look at each other," says the cinematographer, "there's a very Storaro-ish moment. Remember the way he treated Colonel Kurtz in *Apocalypse Now*? Sometimes simplicity adds so much."

Sakharov knew before he started out on *Midnight Edition* that low-budget films don't need

"When I got to New York for the shoot, some of the equipment I'd been promised wasn't available after all. So I finally said: Give me the phone..."

"Most of the time, I take Clairmont equipment with me on location," says Michael Givens. "Even to places as far away as France and Italy and Hong Kong. I've also taken it to shoots in Canada, Mexico and New York."

Shipping costs

"But on one job I did for a New York production company, the finance people there questioned the shipping costs in my budget. So the company decided the camera gear should be rented in New York. "Everything you'll need is here," they told me."

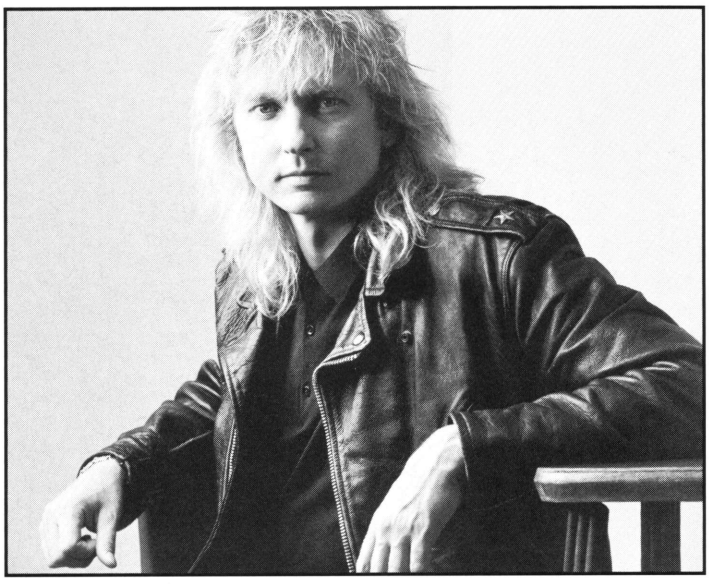
Crucial filters

"This commercial called for 200, 300 and 600mm Nikons; and I needed a wide range of corals and soft-cons and correction filters. Grads would have been helpful—but those would require Clairmont's rear-mounted rotating stages."

Not available

"I arrived with my own set of 40.5mm filters that I use with Clairmont's Nikons. But the Nikons rented by the company had 48mm rear-mount threads; and you could use only one filter at a time. Anyway, the filter range I needed wasn't available in 48mm, *anywhere in town.*"

"So I finally called Clairmont and explained the mess to Terry. He put three of his PL mount Nikon telephotos and all the grad filters I asked for onto the next plane out of L.A."



Michael Givens has been a Director/Cameraman since 1990, directing TV spots for (among others) Club Med, DHL, Federal Express, GMC and Reebok. His D.P. credits include AT&T, Chanel No. 5, Kellogs, Lark, Marlboro, Michelob and Nissan.

Director/Cameraman Michael Givens

Buttoned up

"And I knew I could *trust* those Clairmont Nikons. The camera department should be the most buttoned-up on the set. That has always been important to me—ever since I was an Assistant. Now that I'm wearing two hats, I want tools I'm familiar with, from a place I'm familiar with."

"I work a lot of remote and difficult locations," says Mr. Givens. "Out there, it's going to take some time to replace anything that breaks, no matter *who* you rented it from. So it's mega-important to go with cameras and lenses that the right people have serviced."

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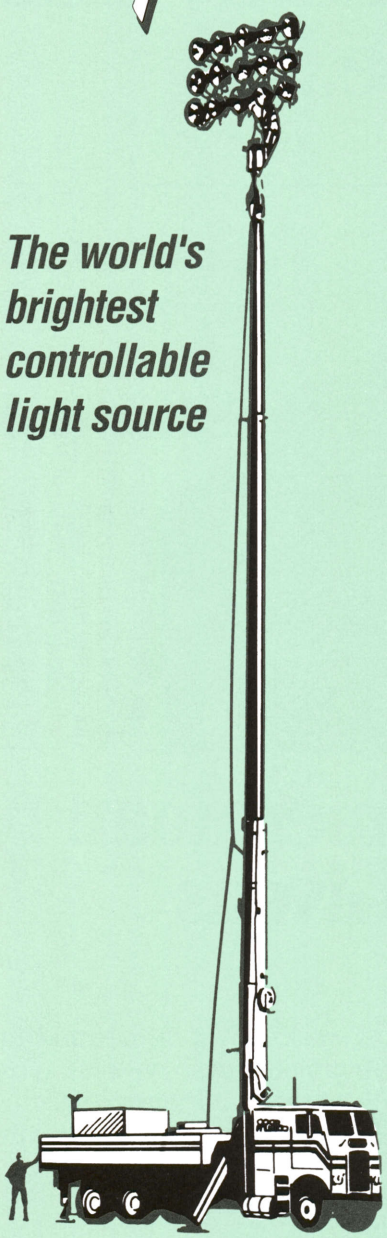
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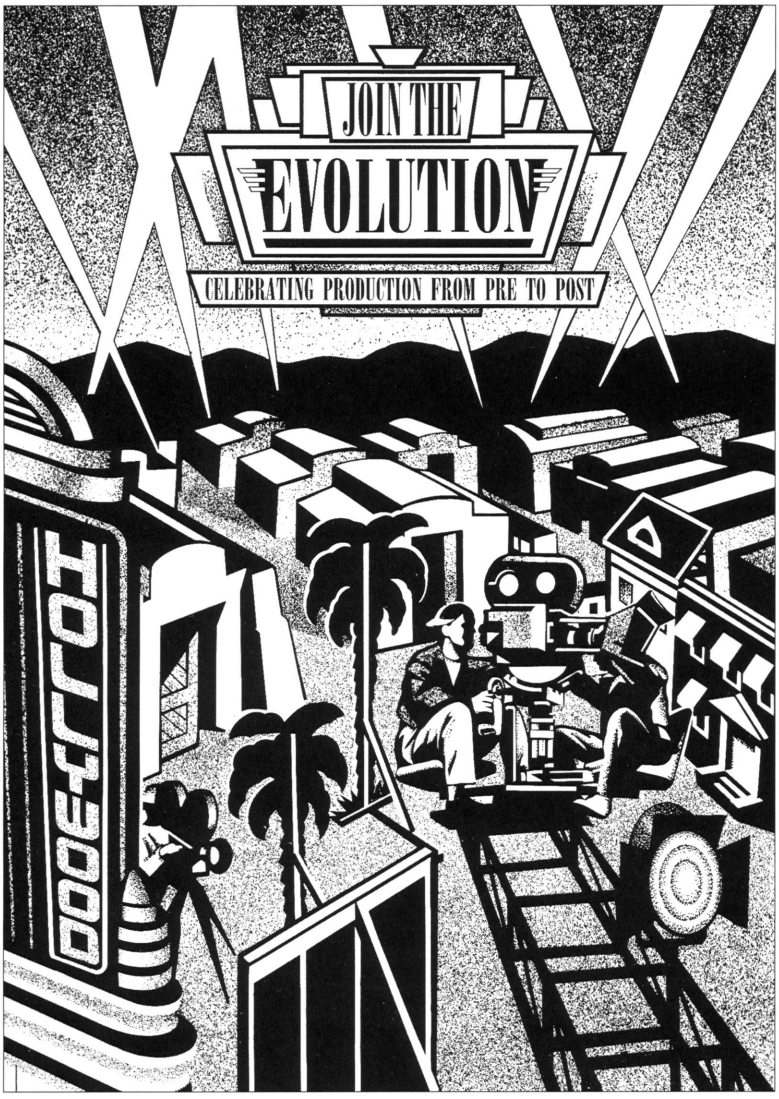
a lot of equipment to make them look good. The simplest setup, he's learned, can produce the most profound work. "One light on a stand, [combined with] excellent performance and appropriate composition, and you can feel it in your gut," he marvels. "It's basically not a question of how much money you have, but how much imagination you have."

He remembers well the words of another Russian filmmaking idol, Alexander Sokurov: "He said once that it's precisely the outmoded Soviet technology that allows Soviet filmmakers to work so inventively with the camera and the lights. In Russia, there is no money, so you rely on creativity. [On this film,] I knew we'd have to be audacious, to turn the camera around. But I also knew there was certain beauty to be found, if we looked for it and knew how to capture it."

The four-week shoot took place in November and December. When it wasn't raining, the sky was grey and the wind was cold. But in spite of the rain, "we got one scene that I absolutely adore." The rain made it hard to install lights, "and I had to make the best decision I possible could under the circumstances." The cinematographer wanted to convey a poignant, haunting mood as Daryl walks down a country road on his way to the farmhouse where his victims are eating dinner. "It was about 3:30 in the afternoon, and dark. The sky had begun to brood, the light was grey, and there was a very saturated, wet look from the rain." The cinematographer looked around and decided that the moment had arrived. "I asked Howard if we could shoot that very minute. Howard said OK, so we composed and shot the scene. In my mind, I placed the character at the bottom of the frame, and allowed him to enter into it. I had him stand right at the center of the frame, with the heavy cast of clouds over him. Nature worked with us. When we printed the take, it looked wonderful." Light rain provided a filtration better than anything man could make, and allowed a soft but translucent light to seep into the shot.

Sakharov praised Cinefilm Lab in Atlanta, where "they handled the negative well," though he and Libov chose to screen dailies on a home projection system in the house they rented rather than at the lab. He also credits his Kodak film stocks with the success of his print. He shot all the exteriors on 5248, and accentuated with the 85B and UV-17 filter combination. All the daytime interiors were shot with 5293, and the night interiors and exteriors were shot on 5296. "Basically, 60 percent of the film was shot on 93, with 20 percent each on 48 and 96," he says, adding that he was pleasantly surprised by the 93. "It sees a lot more than Kodak tells us. Sometimes I'd be underexposing in the shadow, about four stops under, and I'd still see detail there. When you do opticals, it drops a little, but I learned to allow for that, maybe half a stop." He also loved the 48, "which is a wonderful stock," but found the 96 a bit grainy. "It doesn't hold up against the 48 and 93. If you overexpose the 96 one full stop, it has more promise. But on the other hand, when you overexpose it, it becomes 250 ASA. I'd rather shoot on 200 ASA and get all the richness of the 93."

What kind of film does Sakharov want to shoot next? "I want to be able to shoot any kind of film I'm asked to do," he maintains. "I want to be able to use my knowledge and understanding of cinematography, which increases with every project I shoot." He's currently interested in developing the art of framing. "I'd like to apply it to any genre, but right now I'd really like to shoot a black & white picture. Black & white film is a beautiful, forgotten medium. And [in terms of] genre, what interests me most is the cinema of poetry. That's what I respond to most profusely."



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ADVANSTAR EXPOSITIONS

ASC Applauds Television's Top Cinematographers

by Chris Pizzello and Marji Rhea

In a ceremony refreshingly free of the excess of more renowned Hollywood awards nights, but long on tasteful tributes to the art of cinematography and its practitioners, The Eighth Annual ASC Awards for Outstanding Achievement in Cinematography were held on Sunday night, February 27, at the Beverly Hilton in Los Angeles. What follows are profiles of the 15 nominees for ASC Awards in the three television categories — Regular Series, Movie of the Week/Pilot and Mini-Series. The five nominees for Theatrical Release Motion Pictures will be profiled in *AC* next month.

One Episode of a Regular Series

Lowell Peterson
Second Chances
"I Can't Get No Satisfaxion"

According to Lowell Peterson, his ASC Award nomination couldn't have been a more timely emotional boost.

"The week before the announcement was when the earthquake hit; our show was wiped out and we weren't sure if we were coming back," he recalls. "Then this nomination just fell out of the sky. It made us all feel terrific."

Peterson says that the nominated episode, a murder mystery revolving around threatening faxes, had a very frugal budget. "[Producers] Bernie Lechowich and Lynn Latham are very pro-union and wanted to make a union show in town, but they had no money," he explains. "They also wanted a mission architecture, southern California style to the show, so my problem was to create that feeling on stage. It was tough to give dimension to what were basically very claustrophobic sets crammed together.

"We had sets with Spanish architecture, with light Adobe walls and curved archways, where you saw into three or four rooms, and I would say that the best stuff we did was with the subtle photography of those spaces, both on day and night shots. For the day scenes, we were able to bring sunlight through windows and give a lot of depth and dimension to the sets, where there really wasn't any. Even at night we tried to give the sets dimension, having car lights driving by and always having trees moving outside. It was very subtle and subliminal."

The low-budget aesthetic extended to the lighting fixtures used for the episode, which was fine by Peterson. "We didn't use any TransLights, nothing that cost any money," he maintains. "I think photography is about lighting people — large source lighting, close to the actors."

Peterson was educated in art and architecture at Yale and UCLA. He assisted for Jim Sater on *Hawaii Five-O, Lou Grant* and *Newhart,* and later assisted and operated for Edward R. Brown, ASC, on such shows as *Something About Amelia, Star Trek: The Next Generation* and *Blind Ambition.* When Brown retired, Peterson was promoted to director of photography on *Knots Landing,* his first weekly assignment before *Second Chances.*

David Tattersall
The Young Indiana Jones Chronicles,
"Istanbul"

"We literally shot all over the place," recalls David Tattersall of the 25 months he worked on George Lucas' pet project, *The Young Indiana Jones Chronicles.* "We were in Africa, Europe, the States. We dealt with comedy and high art and serious drama, even love stories. We ran the gamut of possibilities."

The show's record-breaking budget, generous shooting schedules and wide range of material gave Tattersall an enviable range of styles to experiment with. "George told me at the beginning of the series that the subject matter of the episode should dictate the style," says Tattersall, who collaborated with a number of estimable directors for the series, including Nicholas Roeg, Terry Jones, David Hare, Carl Schultz, and Simon Wincer. "In fact, looking for a common style throughout the whole series was probably impossible, considering the incredible diversity of the stories and characters."

Because of the series' constant use of unusual locations and tight shots, Tattersall decided to shoot in 16mm. "I'd say it's more advantageous in every respect except for quality," he says. "It was much more convenient, much lighter and much cheaper, which is very important in TV. Our basic camera package was seven camera bodies, which would have been impossible without 35mm production."

A typical episode was "Young Indiana Jones and the Mystery of the Blues," which brought the cinematographer an Emmy nomination in 1993 and which followed the ten-year-old Indy (Corey Carrier) through the stylish, atmospheric world of jazz musicians and gangsters in the Chicago prohibition era. Characters included Elliot Ness and Ernest Hemingway, with whom Indy teams up to solve a murder

Photos by Chris Pizzello

At the podium (left to right): Roland Ozzie Smith, Donald M. Morgan, ASC, Kees Van Oostrum, ASC.

that involves Al Capone. Meanwhile, the young explorer finds time for sax lessons from jazz musicians. The episode also integrated black & white original plate material shot in the '30s.

Tattersall, a graduate of the National Film School of Great Britain, shot numerous music videos and European commercials as well as the English film *The Bridge* before his two-year stint on *The Young Indiana Jones Chronicles*. Tattersall recently finished the Lucas-produced film *Radioland Murders*, a murder mystery set in the 1940s.

Brian J. Reynolds
***N.Y.P.D. Blue*,**
"Oscar Meyer Weiner"

Brian J. Reynolds began his career as a still photographer for Mattel Toys, and later served as director of photography on Jane Fonda's workout videos. He shot a pilot titled *Danger Team* for Lorimar Television, which combined live action and clay animation, and after a number of TV productions, he photographed the first six episodes of NBC's *Sisters*, which led to *Civil Wars* and his first ASC nomination.

Working on *N.Y.P.D. Blue*, Reynolds' second nomination, he faces the same problem he did on the project for which he won a 1992 ASC nomination, the pilot of *Civil Wars* — making a New York setting believable in Los Angeles.

"Today there is so much available to the cinematographer," says Reynolds. "Different film stocks for different looks, different cameras and lenses, new and innovative lighting equipment and techniques. We need to be like doctors, constantly keeping up on what's going on in our world. We have to test. We have to experiment. And then, narrow the field to a half a dozen tools and make the show work. We need to balance an openness with a desire to finish on schedule. Just as in lighting, enough is enough, until you find that one light that makes it a little bit better."

A more in-depth look at Reynolds' techniques will appear in a forthcoming issue of *AC*.

Bing Sokolsky
***N.Y.P.D. Blue*,**
"True Confessions"

In shooting a staunchly gritty, realistic police drama like *NYPD Blue*, one would think that a grounding in classical art wouldn't be high on the list of requirements for a cinematographer.

Not so, according to Bing Sokolsky. "I grew up in New York, where they have real museums," says Sokolsky, whose work was nominated for both the pilot episode and for "True Confessions." "My parents would take me to these museums and inspire me around art. I think a lot of the best cinematographers you see base their work on the composition and lighting of the masters."

Since Sokolsky was given free reign by director Greg Hoblet to experiment with the visual look of the show, he decided to draw on his knowledge of the greats. "I was looking through Degas's work and a couple of other art books I have, and I was inspired by how he mixed a lot of colors," he describes. "Another one of my favorites is Edward Hopper — I base a good portion of my interiors on his work. I mixed a little of those two artists together. We had people coming in and out of warm and cold light for realism. I like to use as many windows as possible as sources, and I try to stay away from the conventional methods, like lighting from the top."

Sokolsky started as a second assistant and loader, working for such noted cinematographers as Billy Williams, BSC, Allen Daviau, ASC and

Stephen Goldblatt, ASC. He eventually became first assistant to Jordan Cronenweth, ASC for three-and-a-half years, working on *Peggy Sue Got Married*, which won the first ASC Award for features in 1987. Since then, Sokolsky has shot numerous commercials, music videos and TV films.

Much of the distinctive look of *NYPD Blue* can be attributed to Sokolsky's smooth mix of two visual aesthetics: the knowledge of different styles brought on by his longtime assisting work, along with his natural tendency to experiment.

"The show had an edge to it because I mixed the soft light of color with the hard light from the old days of black & white photography," he describes. "I like to treat color the way the old-timers treated black & white photography, by layering it. Back then, cinematographers didn't have color to work with, so they would gradate shadows to create depth."

Not surprisingly, Sokolsky is quick to comment that many of the new techniques he himself employs (like the shaky, hand-held camera style seen on *NYPD Blue*) are still subservient to the classic concepts of cinematography passed down through the ages. "The film stocks have changed, the lights and cameras have gotten smaller, and the lens technology has gotten better, but basically we're still sending plastic through a camera gate at 24 frames per second," he says. 'Shaky cam' and all of that is just a tool. We'll experiment, but basically cinematography will always be about composition and lighting."

Roland Ozzie Smith
Dr. Quinn, Medicine Woman,
"Where the Heart Is"
ASC Award Winner

Although *Dr.Quinn, Medicine Woman* tells the story of a mid-19th Century single woman practicing a decidedly un-ladylike profession in a small town while raising three children and courting a mate of partly Native American descent, the main star of the show is the 1860s Colorado mining town where the show is set. Roland Ozzie Smith has the job of making a ranch in Agoura Hills look like the town, replete with buggies, horses, wagons and people in period clothing. He accomplishes the illusion with traveling trees, oak branches, splashes of photographic atmosphere and an assist from Digital Magic.

Upon joining the show, Smith learned that he would be shooting in 16mm, which he had last used in a 1970 Peggy Fleming television special. He researched other shows shot in 16mm and concluded that he would have to avoid high-speed film because of grain problems. Smith ultimately chose the two finest-grain films he could find, Eastman 7245 and 7248. He was also handicapped by the lack of a dual-pin registered 16mm camera, which makes keeping the camera still during filming vital in order to avoid grain. Because of this problem, he opted not to use diffusion on the show to ensure a full transfer.

After a bit of trial and error in the lighting department on the first few shows, he finally found a formula to match the desired look of *McCabe and Mrs. Miller* (shot by Vilmos Zsigmond, ASC)— warm tones, rich blacks, color saturation and plenty of depth. Because of the camera's limitations and the high number of outdoor shots, Smith chose a look with less diffusion, less softness and more depth, explaining that while soft is acceptable in 35mm, the same techniques lose depth and sharpness in 16mm.

Smith relies on Digital Magic's postproduction expertise for help in maintaining a consistent sky in scenes that may be shot over a period of hours, and for balancing the exposure of the show's romantic couple, Jane Seymour and Joe Lando, who seem to reflect vastly different amounts of light. Smith visits the post facility several times a week, and also finds them useful for compensating for his cameras' inability to vary shutter speeds, which forces him to rely on dissolves and f-stop changes instead.

Smith learned the mechanics of the industry from his father, the legendary Harkness Smith, ASC. In the camera department at MGM, his mentors included George Folsey, Karl Freund, James Wong Howe, and Robert Surtees. Prior to *Dr. Quinn*, Smith's television work included *Street Justice* and *Alien Nation*.

Movie of the Week or Pilot

Donald M. Morgan, ASC
Geronimo
ASC Award Winner

The challenge facing Donald M. Morgan, ASC, on the ASC Award-winning *Geronimo* was obvious from the outset.

"We were trying to make an epic movie with a television budget," he states. "The way [director] Roger Young staged the Indian fight scenes made it look like we had a lot more going for us than we actually did. That's his magic and hopefully part of mine. We were able to get an awful lot on the screen."

The assignment called not only for some photographic sleight-of-hand from Morgan but a resourceful use of any extra body on or near the set. "We chose angles that made it look like we had a lot more Indians and soldiers than we did," he says, "and if we had even one person out of the frame, we'd call him over and put him somewhere. There was not one wasted body. We would compress the actors with long lenses, but sometimes when we were close and down in water, we would roll three cameras and [arrange] background action so that someone was doing something for each camera. Then we would criss-cross between cameras so

Photo by Merrett Smith

Representatives of the ASC and Eastman Kodak greet this year's feature film and television honorees. **Front row, left to right:** ***Ron Garcia; Thomas Del Ruth, ASC; Isidore Mankofsky, ASC; Conrad Hall, ASC; Michael Chapman; Jack Cardiff, BSC.*** **Middle row, left to right:** ***Roland Ozzie Smith; Brian J. Reynolds; Stuart Dryburgh; Phedon Papamichael; Kenneth Zunder; Rob Draper, ACS; Henri Petit of Eastman Kodak.*** **Back row, left to right:** ***Frederick Franzwa of Eastman Kodak; Bing Sokolsky; ASC President Victor J. Kemper; Lowell Peterson; ASC Awards Committee Chairman Bud Stone; ASC Awards Committee Co-Chairman Philip Lathrop.***

that we could keep as many people in each shot as possible."

The result was that "it looked like we spent a lot more money than we did," Morgan says. The cinematographer also wasn't shy with his use of filters on the project, since he was aiming for an old-fashioned visual look to match the historic Arizona locations.

"I used Tiffen tobacco filters, low-contrast filters and soft effects filters, either all at once or just some of them," Morgan explains. "The filters gave the film an old-fashioned look, while the Indians' skin tones [in combination with] the tobacco filters also helped a lot. We also shot in Old Tucson to get that old look."

Morgan only made changes in his strategy when they made dramatic sense. "When the Indians were on the reservation, I took all the warmth out of the filtration," he says. "I took off the tobacco filters and put double fog filters on, so that the scene would just glow a little bit. We made it as hot and washed out and uncomfortable-looking as we thought it probably would have been."

Augmenting the logistical problems of the *Geronimo* shoot was some punishing weather that wreaked havoc on the production. "We had some real problems with the monsoons," Morgan recalls. "One time I had an entire night camp on a hill lit and ready to go, and a terrible rainstorm almost washed out the whole setup. They wanted to wrap because of the lightning, but I kept saying 'I've never seen anything prettier than this.' Finally we had to go, and I kept arguing all the way down the hill. When we got back, we found out that three of our guys had been hit by lightning while loading the electrical truck. So I learned a lesson about movies — that they're not everything."

Morgan's latest assignment was serving as the director of photography on the aerial unit for the forthcoming feature *Terminal Velocity.*

Bing Sokolsky
N.Y.P.D. Blue **(pilot)**
(Please see entry above.)

Kenneth Zunder
seaQuest DSV **(pilot)**

Following honors for *thirtysomething* and *Brooklyn Bridge, seaQuest DSV* marks the third nominaton for Zunder, who studied art history at Harvard and earned a master's degree in documentary filmmaking at Stanford. He knew during his junior year that film would be his life's work, though he was undecided between cinematography and editing. Zunder pursued a master's degree in documentary filmmaking at Stanford University, and after graduation worked

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on documentaries in San Francisco for a number of years.

"I met interesting people and did important work, but there weren't a lot of opportunities," he said. "I spent a lot of time writing grant proposals." His years in San Francisco, though lean, did teach him never to stop rolling film just because the director says 'cut,' a practice he's brought into his feature and television work. "You learn to keep your camera rolling as long as something is happening, because you never know when the moment of truth will occur."

In 1978, after three tries, he was awarded one of a limited number of apprenticeships by the International Photographers' Guild, slots vied for by about 1,000 others. After a training program of 40 60-hour weeks, Zunder entered the Guild as a second assistant in 1979. His first job was with Laszlo Kovacs, ASC. He then worked with Bobby Liu, ASC, on *Lou Grant* and Phil Lathrop, ASC on *Airport '79,* in addition to several other films; and with Michael Chapman on *Personal Best*. Tom Del Ruth, ASC moved him up to first assistant and operator, and the two worked together on *The Breakfast Club* and *The Running Man*. His other credits include *True Believer* with John Lindley and *Rain Man* with John Seale, ACS.

In August of 1989 he was promoted from camera operator to director of photography on *thirtysomething*, for which he won an ASC nomination in 1990 for the episode "The Go-Between." After two-and-a-half years on that show, he moved to *Brooklyn Bridge*, where he won another ASC nomination in 1993 for his work on the episode "The Immigrant."

Neil Roach
To Dance With
The White Dog

In a craft as feverishly technical as cinematography, it's all too easy to forget the age-old virtue of simplicity.

For the Hallmark presentation *To Dance With The White Dog*, cinematographer Neil Roach found his stripped-down approach to be a boon not only to himself but to the entire production.

"[The movie] was romantic with a little bit of comedy thrown in, and it took place on a farm in Georgia," he describes. "It needed a warm and homey kind of look, and the director concurred with that. We also had to design our lights and staging around two actors in their mid-80s while filming in south Georgia during a very humid August. We had to design our shots and lighting in such a way [to tax the actors as little as possible]. Marks on the floor weren't as important, so there weren't extra takes for the camera or to stop and re-light.

"We made the movie around the acting and the performances rather than the cinematography, which requires a conscious effort on the part of the cameraman to work that way. [My job] was less about photographic precision and more about getting a nice look while giving the actors some freedom — they didn't have to hit precise marks and dance around equipment that was all over the floor."

Roach began his career in 1968 in the camera department at Kansas City's Calvin Productions. After moving to Dallas, he shot commercials and industrial films, and later became an operator and second-unit cinematographer for studio films like *Breaking Away, The Island* and *Semi-Tough.* After 1980 he began to pursue work as a director of photography, and since then has shot around 75 television movies, including *Of Mice and Men, Alex: The Life of a Child, Houston Knights, Decoration Day* and *My Name is Bill W.* (for which he was nominated for an ASC Award). Roach has also photographed several television pilots and series, as well as the feature film *Red Headed Stranger*. His latest project is the forthcoming NBC television movie *The Substitute,* starring Farrah Fawcett, Peter Weller and Lea Thompson.

Thomas Del Ruth, ASC
***X-Files* (pilot)**

It would be safe to say that Thomas Del Ruth grew up in the right neighborhood to prepare himself for his future profession.

"My dad [Roy Del Ruth] was a film director, but we lived around cinematographers," he notes. "Namely, Russell Eddie, an ASC member and Academy Award winner, and Bob Surtees, who was my next-door neighbor. And Jimmy Wong Howe lived right down the street."

Frequent chats with his talented Hollywood neighbors set Del Ruth on the path to becoming a cinematographer. He got his first job as a second assistant cameraman in 1966 on *So Broke,* before going on to assist for such luminaries as Conrad Hall, Jordan Cronenweth and Bruce Surtees. He got his break in 1980 when Universal made him a director of photography for *Mrs. Columbo.* Since then Del Ruth has split his time between commercials, music videos, television movies and features such as *The Breakfast Club, Stand by Me, Cross My Heart, The Running Man* and *Look Who's Talking.*

Del Ruth's stylized cinematography on music videos and commercials made him a natural choice for *X-Files,* which he terms a "clinical fantasy." "The two main characters are rather skeptical about the adventures they are about to go on, since they have to interview a lot of peculiar people and find themselves in circumstances which are not explainable in rational terms," he explains. "So the charter with cinematography was to stylize the image, but to the point where it was still acceptable reality. It was very important that I didn't make [the images] overly theatrical, but at the same time make them romantic enough so that the unknown is appealing."

The fantastic elements of the plot freed Del Ruth to exercise some baroque lighting touches, especially in scenes concerning a mythical, undefinable presence that could be a spaceship or a divine light. "This light continuously illuminates a forest until the forest becomes grossly overexposed, including the subject," Del Ruth describes. "This was all done in the camera, so the scene required 15 or 20 Dino lights suspended by large 150-foot cranes over the sets, all placed on dimmer packs so that the intensity could be raised on cue.

"Maxi-brutes and ninelights were placed behind the trees at lens level, firing back into the lens, to produce this backlight aura effect while the foreground was beginning to grossly overexpose. On a feature film, you'd do something like that over a three- or four-day period, but we were able to accomplish it within a 10-hour period."

To achieve the slightly romantic aura by which to draw in viewers, Del Ruth says he used "soft front fill and some ProMists and nets on occasion, especially in the overexposure sequences, as well as shooting some daylight-balanced stock under tungsten illumination. I tended to use a little more backlight than I would in a reality-based show."

Del Ruth's latest project is the feature film *E.R.,* directed by Tony Bill and starring James Woods and Randy Quaid.

One Episode of a Mini-Series

Rob Draper, ACS
***A Matter of Justice* - Part 1**

For Rob Draper, ACS, it's been a long, strange trip from Wagga Wagga, Australia.

After initially buying a camera to film his wife horseback riding, Draper eventually found himself shooting and editing for the local television station in Wagga Wagga, which led to documentaries, commercials, and the inevitable pilgrimage to the States to pursue dramatic work.

A Matter of Justice is Draper's fourth collaboration with director Michael Switzer and was shot on location near Topeka, Kansas right in the

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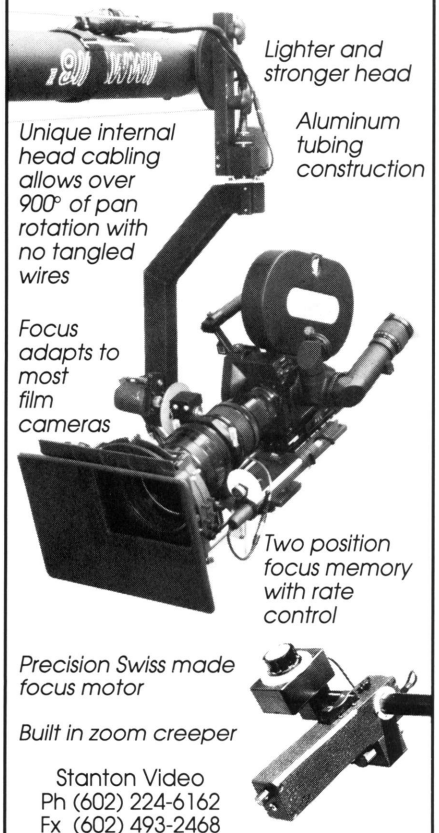
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middle of tornado season. "We would have sunshine, then pouring torrential rain, followed by sunshine again, then a tornado would go through," Draper recalls. "Trying to maintain a consistent look for a four-hour miniseries — at the pace you've got to work at for a television program — was really a nightmare. We had to keep changing our ideas about the look of the show, because on a day that we wanted to be completely overcast for a blue-grey, cold, miserable sort of feel would instead be brilliant blue skies and sunshine. We kept as much as we could to the style we wanted but we just had to adapt to the weather."

Adverse conditions sometimes bring out the most interesting and unexpected visual results, however, as Draper discovered. "We shot one particular scene late in the afternoon at magic hour to get Martin Sheen driving up to a church on a beautiful, grassy hill," he explains. "We got that shot, but then all our camera gear got stuck in a bog! By the time we got back to the church to do the rest of the shot, the sun had set. We had to light the whole scene for a big, wide shot looking out over the plains, basically at night. We relied on the lenses, the speed of the film and creative lighting. Martin Sheen came up to me and said, 'You've got to be kidding,' but I said, 'Trust me, Martin, it'll work.' In the final product, you really couldn't tell that we had any problems."

A Matter of Justice marks Draper's second ASC Award nomination, the first being the 1992 mini-series *False Arrest* (which won an ACS Award in Australia). He was also nominated for an ACS Award for the television movie *Stormy Weathers* in 1993. Among his feature credits are *Tiger Warsaw, Halloween 5, Tales from the Darkside, The Movie* and *Simple Justice.* A number of his TV films have captured ACE Awards.

"When I was in Australia, I'd read *American Cinematographer,* and all the guys in there, like Vilmos Zsigmond, Laszlo Kovacs, Conrad Hall and Jack Cardiff, were my heroes," Draper says. "Being at the ASC Awards and getting honored among all those guys was really quite a milestone for me and the high point of my career."

Ron Garcia
Murder in the Heartland - Part 1

For *Murder in the Heartland,* Ron Garcia was determined to make its star, Charlie Starkweather, the real-life Nebraska teen who in 1958 killed 11 people in two days, look as unglamorous as possible.

"I didn't want to romanticize Starkweather in even one frame," he says. "I didn't want to make this character attractive to any young person watching this film. I wanted them to see the horror of what he had done, and the social ramifications."

The filmmakers de-saturated the show's look in its production design and wardrobe, as well as the cinematography. "I didn't want to just go into the blue range [on film]," Garcia explains. "Everyone goes to a cool blue look when they want something solemn and somber. I was looking for a really close-to-natural overcast gray. So I decided not to shoot with an 85 filter; I shot tungsten film with daylight, and all of my lamps, including practicals, were daylight-balanced. I wanted the only warmth to be in the background."

Inspiration for the look of the movie, shot in north Texas, came from the stark still photography of the 1950s, a look director Robert Markowitz agreed on. "The way those old stills weren't rendered, weren't set up, really interested me. In some cases, I even tried to use flat light like the stills," recalls Garcia.

"There was a scene in a Charlie Starkweather documentary in which a photographer took a picture of the house where some of the murders took place. A big flash went off, and there

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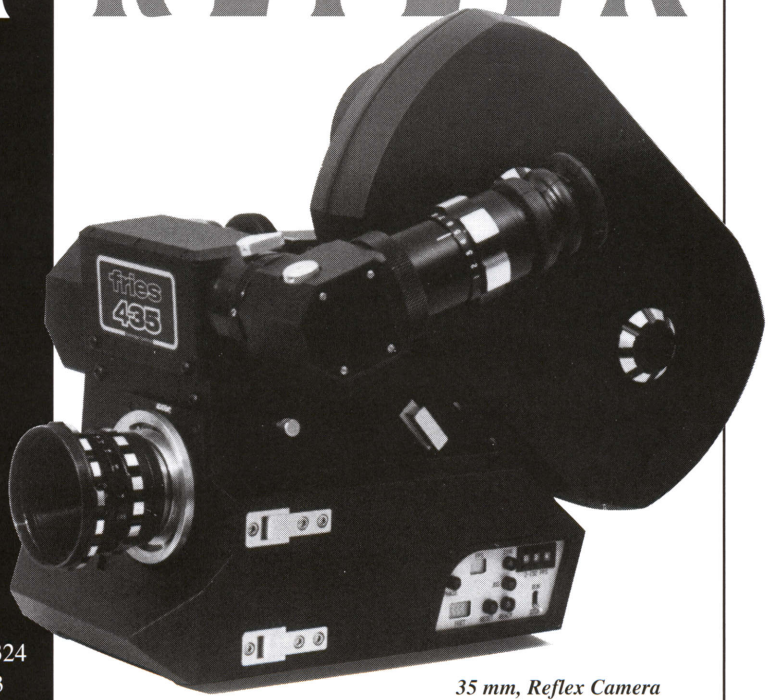

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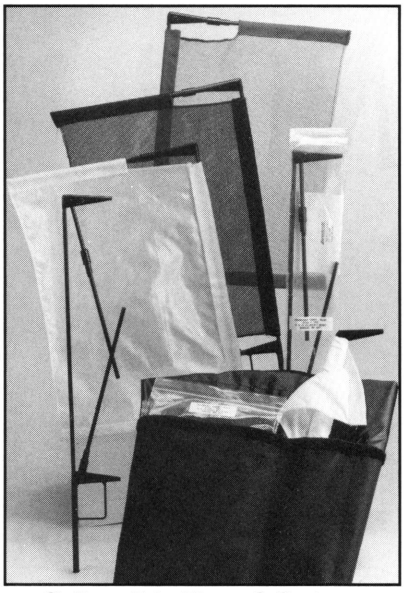

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was this horrible-looking shack with just pitch blackness behind it. So when I had to shoot a similar scene, I lit the house with a really hot front light to get that feeling."

A former draftsman in the aerospace industry, Garcia was first introduced to his future career after a coworker asked him to shoot a boat race by a coworker in 1966. "I didn't have the slightest clue what I was doing," he confesses, "but I fell completely in love with the whole process."

Garcia and a partner later incorporated some of the race footage into a hastily scripted 16mm feature, then blew it up to 35. In 1969 they shot their next project, *Machismo*, inspired by *The Magnificent Seven*, in 11 days for $80,000. The film, still shown today, eventually went on to break drive-in theater records and was played on Hollywood Boulevard as part of a twin bill with Sam Peckinpah's *Pat Garrett and Billy the Kid*.

Garcia's other credits include episodes of the series *Hunter*, *Stingray* and *Crime Story*; the *Twin Peaks* TV pilot (which earned an ASC nomination); the *Twin Peaks* feature prequel *Fire Walk With Me*; and the films *Nightbreaker*, *El Diablo* (for which he won the 1991 ACE cable award) and *Storyville*. *Murder in the Heartland - Part 1* has already earned him an Emmy nomination.

Kees Van Oostrum, ASC
***Return to Lonesome Dove* - Part 2**
ASC Award Winner

Kees Van Oostrum, ASC doesn't really care if his work is displayed inside a living room or in a theater.

"I focus on good material," he says simply. "Whether it's a feature film or a television program, I don't think that's of much importance. I have a lot of good relationships with directors in television that I will continue to have, but I'm also interested in features."

Since his formative years at the Dutch Film Academy and the AFI, Van Oostrum has achieved a finely balanced body of work including features, television mini-series and movies-of-the-week. He has photographed the features *Blue Heaven, A Certain Fury, Gettysburg* and the forthcoming *Separate Lives,* while his television work includes *Burden of Proof* (for which he was nominated for a 1993 ASC Award), *An Inconvenient Woman, Son of the Morning Star, Oliver North, Miss Rose White* (Emmy-nominated), *Somebody's Daughter* and *The Incident.*

Van Oostrum took advantage of the panoramic Montana vistas that were at his disposal for the location shooting of *Return to Lonesome Dove.* "We went for a very strong Montana feeling and used the scenery as much as possible to give it a more epic look," he explains. "This is the 'promised land' the characters talk about going to in the first *Lonesome Dove.* The images had to be very pictorial with vivid colors."

The cinematographer opted not to light the mini-series' many characters in specific fashions, preferring to focus on the universal scope of the story. "I think *Lonesome Dove* is more a drama that deals with the land and the people who try to live in it," he opines. "[The piece] is very character-driven, so the dramatic mood of a scene is pretty much determined by the material and the actors."

Van Oostrum, who acts as his own camera operator, customarily brings the same crew with him to his different projects and is quick to salute their contribution to the winning result. "I'm very thrilled, needless to say," he noted about his nomination, "but to me it's an award that reflects excellent work by my whole crew and the other people that worked on the show, because *Return to Lonesome Dove* really was a very big enterprise and a huge effort."

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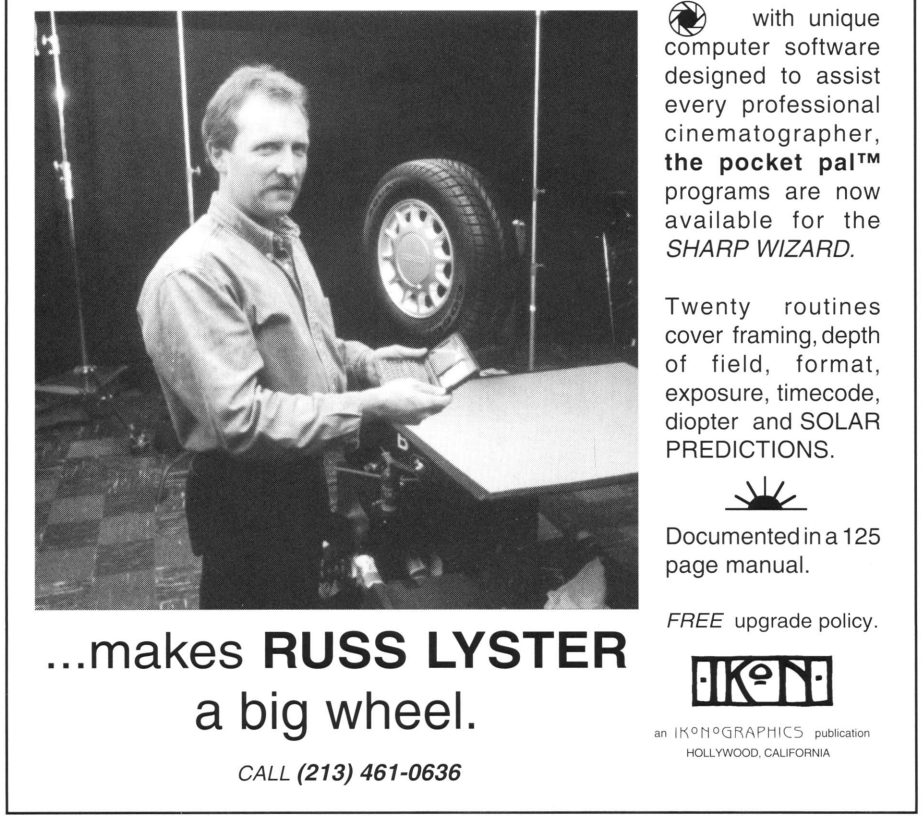
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Isidore Mankofsky, ASC
***Trade Winds* - Part 3**

If there was an ASC award for "Most Resilient Cinematographer for a Mini-Series," it would surely go to Isidore Mankofsky.

The veteran cinematographer, along with much of the cast and crew of *Trade Winds*, was saddled with a tropical illness and a 103-degree fever for a sizable portion of the St. Martin Island shoot in the Caribbean, but pressed on nonetheless. A touch of irony was added to his arduous task by the fact that *Trade Winds* was, in Mankofsky's words, "a film lit not for dramatics, but for beauty. The people had to look more beautiful than life, and so did the island."

The consummate professional, Mankofsky innately understood what type of visual style a tropical-flavored soap opera like *Trade Winds* required. "The whole idea behind being in St. Martin was to show off the island and make it look like a place that people would want to go to," he explains. "The light out there is very harsh, so I tried to fill in the shadows and use nets and silks whenever I could. I used a Panaflasher to soften the shadows a bit, and also soft effects filters on the actors, especially the ladies. There were also quite a few scenes on patios and porches in which I had to balance the foreground and the background. There's no point in being in St. Martin if you can't take advantage of the beautiful ocean, beaches and trees. This became quite an effort — I used every trick in the book to balance it without burning the actors up."

While Mankofsky says it's fun to work in different visual styles, he admits that the polished stylings of a project like *Trade Winds* aren't his natural forte. "*Trade Winds* is very, very different from my other work," he says. "It's not a look I really like doing too much — glossy, almost high-key in style. *Love, Lies and Murder* (for which he won a 1992 ASC Award) was a

very low-key, dirty-looking film — a very different style."

Mankofsky, an annual nominee for both ASC and Emmy awards, is currently working on the forthcoming television movie *Out of Synch,* directed by famed choreographer and actress Debbie Allen.

Phedon Papamichael
***Wild Palms, The Floating World* - Part 2**

Network television has rarely embraced surrealism as unapologetically as the Oliver Stone-produced mini-series *Wild Palms,* a rebellious mixture of virtual reality, soap opera plotting and New Age philosophy.

According to cinematographer Phedon Papamichael, however, the freewheeling project ironically required a restrained visual strategy. "[Creator and co-executive producer] Bruce Wagner is really responsible for the look," he says. "When I first met him, he told me he wanted the show to look like 'Phedon Papamichael shooting *Dynasty.*' He wanted the weirdness of the setting to creep in, so I never integrated strange lighting or colors. I didn't feel we had to. All we had to do was show the setting and the actors [while] the story played itself out. When you have sets and wardrobe and dialogue that are so eclectic and weird, you don't have to add more to it or it tends to go over the top. In the end, what you have is a very naturalistic look with very unnatural action. For me, the effect is creepier."

Papamichael grew up in Germany, where he started out as a still photographer in the military before moving on to magazine photojournalism. He shot photos for prestigious European publications like *Stern* and *Paris Match* , which eventually allowed him to move to the United States. His father's vocation as a film production designer and art director (serving in the latter capacity on all of the late John Cassavetes' films) piqued the

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younger Papamichael's interest, and he began to shoot various short subject movies and videos.

"It was pretty much a self-taught process that I went through," he recalls. "I would just learn from mistakes. I was familiar with exposure, film and f-stops, but with some of the really basic technical skills, I had to invent [my own techniques] — like how to pull focus."

Papamichael has served as a cinematographer on a variety of features, including *Body Chemistry, Love Crimes, Poison Ivy* and *Cool Runnings*. He has also branched out into directing, helming *Sketch Artist* and the recently completed psychodrama *Dark Side of Genius* (which he also photographed). Next on Papamichael's busy slate is shooting director Diane Keaton's *Unstrung Heroes*, which he describes as a "surreal, magical family story set in the '60s, told from the point of view of a 12-year-old boy."

Papamichael says one of the most rewarding aspects of the show was the chance to work with four different accomplished directors — Peter Hewitt, Keith Gordon, Kathryn Bigelow and Phil Joanou. "I was in charge of keeping a constant look," he says. "The differences among them would concern the shots themselves, rather than the lighting -- wider lenses and maybe more camera movement in one episode than another. But certain things in the pilot were picked up by the subsequent directors and continued, like the use of Steadicam and a lot of wide angle shots rather than traditional coverage. Usually you cover closer in television, but *Wild Palms* was never shot with a television audience in mind. The objective was to give it the look of a feature.

"Everyone was discovering the material as we went along," he continues. "It was spontaneous and open, almost like doing improv theater."

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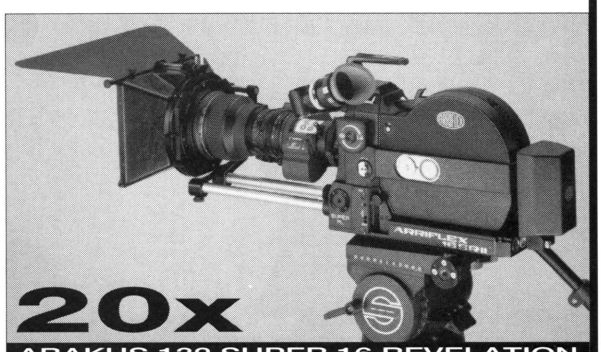

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The 1994 Sci-Tech Awards: In Praise of Innovation

by Chris Pizzello

Where fame is concerned in the movie industry, those who harvest the grain rarely get in on the feast. But on one night every year, the legions of technical innovators who quietly draw the blueprints for motion picture magic garner some rightful kudos at the Academy Awards for Scientific and Technical Achievements. The 1994 Awards were presented during a ceremony in late February hosted by actress Laura Dern at the Beverly Hilton Hotel.

Scientific and Technical Awards are given for devices, methods, formulas, discoveries or inventions of special and outstanding value to the arts and sciences of motion pictures and which have a proven history of use in the motion picture industry.

Awards may be granted in any of three classifications: Academy Award of Merit (Oscar statuette), for basic achievements which have a definite influence upon the advancement of the industry; Scientific and Engineering Award (Academy plaque), for those achievements which exhibit a high level of engineering and are important to the progress of the industry; and Technical Achievement Award (Academy certificate), for those accomplishments which contribute to the progress of the industry.

Past honorees of the Academy Award of Merit include the development of the modern motion picture camera; the introduction of CinemaScope, VistaVision and Todd-AO; the development of the Dolby sound systems; and the fluid-damped camera head for motion picture photography.

Also receiving an Oscar statuette each year is the recipient of the Gordon E. Sawyer Award, which recognizes a lifetime of achievement by an individual "whose technological contributions have brought credit to the industry." The award was established in 1980 in memory of Sawyer, who was head of the sound department at the Samuel Goldwyn Studios for many years. The last recipient was Erich Kaestner, who oversaw all Arriflex camera and optical development.

This year's recipients were as follows:

Gordon E. Sawyer Award

Petro Vlahos, the 11th recipient of the award, has served the motion picture industry as a design, field and systems engineer and as the chief scientist for the Association of Motion Picture and Television Producers. Since receiving his engineering degree from the University of California at Berkeley in 1941, Vlahos has established more than 35 U.S. and foreign patents, the most notable of which concern the Color Difference Traveling Matte System and the Sodium Traveling Matte System.

He was awarded an Oscar in 1964 for his development of traveling matte systems, and was also presented a Medal of Commendation in 1992 for his outstanding service and dedication in upholding the high standards of the Academy of Motion Picture Arts and Sciences.

Vlahos has also been recognized by the Society of Motion Picture and Television Engineers (SMPTE) with a Life Fellowship and the Herbert T. Kalmus Gold Medal Award (1987). Vlahos was the recipient of an Emmy Award in 1978 for his electronic compositing system, which is used throughout the television industry.

Vlahos, who received his award to a standing ovation, showed a wry sense of humor by announcing that he was going to give three speeches — of five-second, 10-second and 30-second duration — to accommodate the editors of the Academy Awards show.

"Does a lifetime achievement award mean I've finished achieving?" he pondered during his remarks. "Or consider that it means I might expire."

Technical Achievement Awards

(Academy Certificates)

Wally Mills (concept) and Gary Stadler and Gustave Parada (design) for the Cinemills Lamp Protection System, which provides a process that prevents the early failure of 20 Kilowatt lamps by maintaining an essentially uniform current flow to the lamp filament as it heats and changes resistance.

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Gary Nuzzi, David Johnsrud and William Blethen for the design and development of the Unilux H3000 Strobe Lighting System, which generates a high-intensity light pulse with a duration of only $1/100{,}000$ of a second, the effect of which is to freeze an object moving at a high rate of speed so it can be photographed with extraordinary sharpness.

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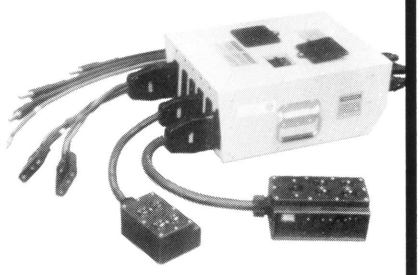

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Michael Dorrough for the design and development of the compound meter known as the Dorrough Audio Level Meter, which provides a single-scale presentation of peak levels and energy content with a high correlation between the complex signals present and the acoustic output.

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David Degenkolb for the development of a Silver Recovery Ion Exchange System to eliminate hazardous waste (silver ion) in wash water and allow recycling of this water. The system improves the quality of a laboratory's wash water, resulting in significantly lower environmental impact and reduced water cosumption.

Scientific and Engineering Awards
(Academy Plaques)

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Fritz Gabriel Bauer for the design, development and manufacture of the Moviecam Compact Modular 35mm motion picture camera system. The compact is a modular, lightweight 35mm camera system with quiet operation and the ability to be easily reconfigured from one mode to another.

Academy Award of Merit
(Oscar Statuette)

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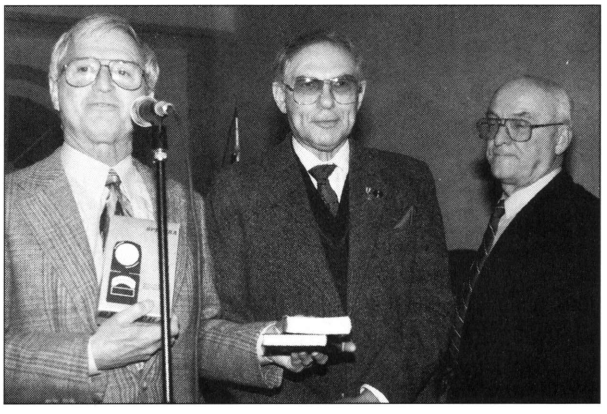
Manfred G. Michelson of Technical Film Systems, Inc., for the design and development of the first sprocket-driven film transport system for color print film processors which permits transport speeds in excess of 600 feet per minute. The unconventional system has had significant impact on the design of film processors and on the economics of the film processing industry. Michelson originally received a Scientific and Engineering Award in 1990. ❧

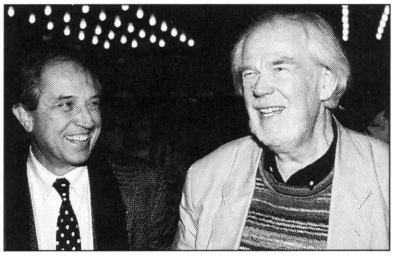
Letter from Torun: Camerimage '93

by Marek Hendrykowski

A cinematographer in the shadow of film — standing behind the camera, outside the lights — is somebody in his proper place and his usual situation. For a single cinematographer to be treated like a superstar — posing in the lights, in front of the camera, being interviewed about details of his work and secrets of his profession by print, radio and T.V. journalists — is a unique and unusual situation. For dozens of famous directors of photography from many different countries to be treated as heroes and subjects of an international film festival is something extraordinary indeed.



Photos by Aleksander Marek



Clockwise from top: ***Kazimierz Parucki (left) and Marek Zydowicz (center) present the Golden Frog to Sven Nykvist, ASC; Samsung Electronics President Albert Kim, with Jean-Michel Humeau; Vittorio Storaro, ASC, AIC and Nykvist; ASC President Victor J. Kemper, ASC, Associate Member Roman Harte and Witold Sobocinski.***

Such an event, the International Festival of the Art of Cinematography Camerimage '93 in Torun, Poland, took place from November 22-28, organized in Poland by the Tumult Foundation and its two leaders, Marek Zydowicz and Kazimierz Parucki.

The old Polish city of Torun, situated not far from Warsaw on the way to Gdansk, is famous for at least two things, Nicolai Copernicus and excellent gingerbread. It is also connected with an ancient story according to which a great number of frogs, once upon a time, nearly gained possession of the city. This primeval legend gave the name to the Camerimage's Grand Prix, The Golden Frog, a statuette much heavier than Oscar!

The city hosted an outstanding selection of contemporary masters of camera and light, as well as film critics, film historians and journalists. Representatives of many national societies of cinematographers attended, including society presidents Victor Kemper of the United States, Harvey Harrison of Britain, Pierre L'homme and Stephane Pozderec of France, Hennig Kristiansen of Denmark, Wolfgang Treu of Germany, Alessandro D'Eva of Italy, Jaromir Sofr of Czechoslovakia, and Tote Trenas of Spain.

Other featured guests were cinematographers Adam Holender, ASC; Witold Sobocinski; Sfawomir Idziak; Edward Klosinski; Dick Pope; Francois Lartigue; Jean-Michel Humeau; Witold Stok; Nancy Schreiber; Jost Vacano, ASC; Stephen Blackman; Jurgen Jurges; Achim Poulheim; Pierre-William Glenn; and Theo Blerkins. The jury consisted of jury president Vittorio Storaro, ASC, AIC; Victor Kemper, ASC; Ryszard Horowitz; Slawomir Idziak; Witold Sobocinski; film critic Jerzy Plazewski; Janusz Kaminski; Adam Holender, ASC; and Achille Bonito Oliva.

Vittorio Storaro, with his energy and warm-heartedness, played the role of the *spiritus movens* of the Camerimage '93, but the greatest star this time was Sven Nykvist, ASC, awarded The Golden Frog for his 48 years of artistic activities. The Grand Prix of the Golden Frog was granted to Stuart Dryburgh for *The Piano*, directed by Jane Campion. The

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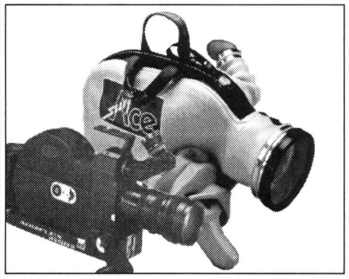

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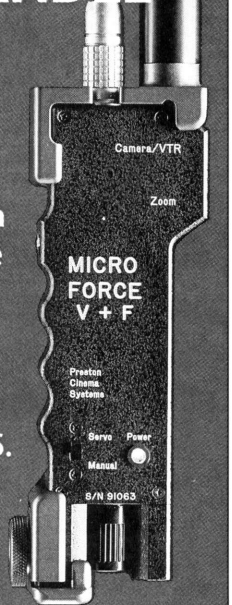

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jury also granted a special award to Gu Changwei for the photography of *Farewell My Concubine.*

Moving images are a kind of metalanguage which reflects in thousands of films the world's ethnic and cultural diversity. This metalanguage seems to be the 20th Century's *lingua franca.* The art of the moving image is currently undergoing cultural and aesthetic transformation. A tentative analysis of the moving image's historical development was attractively presented in the American Film Institute production *Visions of Light,* by Arnold Glassman, Todd McCarthy and Stuart Samuels and photographed by Nancy Schreiber.

As a tribute to tradition, the festival was opened with the screening of a masterpiece of silent cinema and black & white cinematography, *Sunrise,* directed by Wilhelm Friedrich Murnau and filmed by Charles Rosher, ASC and Karl Struss, ASC. Another highlight of the festival was a retrospective of Nykvist's work. In all, 13 films were chosen for the competition, among them *The Age of Innocence, Falling Down, Howards End,* and *Chaplin.* However, the festival's greatest discovery was Vittorio Storaro's *Roma: Imago Urbis,* directed by Luigi Bazzoni. Rarely seen on the big screen, this beautiful visual poem about the ancient world possesses a fascinating rhythm and displays extraordinary strength of expression.

Torun's Camerimage '93 — televised daily by Polish television, its closing ceremony watched live from the auditorium of Nicolai Copernicus University by millions of viewers — awakened great interest in the art of cinematography. The city was proud to host the first such gathering of the world's directors of photography, and to play a part in the movement to bring attention to this filmmaking discipline.

Warner Baxter (back to camera) gives a pep talk to the cast, including Ginger Rogers, Una Merkel (left, wearing slacks), Dick Powell (hands in pockets), Bebe Daniels (evening wear) and George E. Stone (at stage apron).

Movie Musicals Turn a Corner at *42nd Street*

by J.B. Kaufman

Sixty years ago last spring, American movie audiences packed theaters across the country to see a film which was, of all things, a musical. It was, of course, Warner Bros.' *42nd Street*, a picture that not only broke the long-standing box office jinx on film musicals, but also inaugurated an exciting new phase in their history. In producing it, however, the studio hedged its bets, supplementing the film's musical status with other attractions.

The project began with an as-yet-unpublished novel by Bradford Ropes, *42nd Street*, which Warners acquired in August 1932. Divided into two sections, "Rehearsal" and "Opening," the novel told the story of staging a Broadway musical, and thus did bear some resemblance to the subsequent film. In some respects, however, the book followed a highly volatile course all its own. Its cast of characters included a homosexual director who was involved with the show's juvenile lead; a dance director who fancied underage chorus girls and stayed with his wife only because she was blackmailing him with evidence of a past indiscretion; and a bitchy, over-the-hill leading lady who got drunk and fell down a flight of stairs just before opening night, suffering a concussion. Her understudy, the story's one sympathetic character, stepped forward to take her place — and quickly assumed not only the star's role but also her demanding nature.

Upon publication, this seamy backstage story met with a mixed reception. The *Boston Transcript* praised it: "The author knows his subject thoroughly, the characters are well drawn, the atmosphere is perfect and the story is good." The *New York Times*, on the other hand, sniffed, "This is not

Three cameras film the "You're Getting To Be a Habit With Me" number. The Vitaphone Orchestra is in the pit, with conductor Leo Forbstein at left and Busby Berkeley just right of him. Bebe Daniels, Baxter, Ruby Keeler, Merkel and Rogers are principals on stage.

a book to give to a maiden aunt, nor can one relish it as a clever, naughty *jeu d'esprit*. Anecdotes, allusions and conversations are, for the most part, of an excessively vulgar, gossipy nature."

Such controversy was the stuff on which Warners films thrived in the early Thirties. Production chief Darryl Zanuck, with his penchant for tough, gritty stories, must have been immediately attracted to this one. Major revisions were clearly necessary for the screen, however; no American filmmaker this side of Erich von Stroheim would have touched *42nd Street* in its original form. Three members of the Warners writing staff — Whitney Bolton, James Seymour and Rian James — developed a script which retained many of the basic characters and situations of the novel, yet softened or eliminated its most sensational aspects. In more recent times this adaptation has been scorned as a Hollywood cop-out. Whether such a charge is justified or not, the net effect of the changes was to improve the story. The film writers tempered Ropes' juvenile excesses with a more realistic measure of restraint.

In an article written for the *Hollywood Reporter* in December 1932, Zanuck indicated another impetus behind the film: he saw it as an "exposé" — in the sense that *The Mouthpiece* had been an exposé of William Fallon. In this case the object was Florenz Ziegfeld, alleged to have driven his players mercilessly to stage his musical shows. This aspect of the film was given characteristic Warners timeliness by Ziegfeld's recent death in July 1932.

The cast of *42nd Street*, drawn largely from Warners' stock company, was augmented by special players in key roles. For the top-billed part, fabled director Julian Marsh, the studio borrowed Warner Baxter from Fox. Baxter's weary, haggard appearance in the film may have been the real thing; between contract assignments and loan-out roles, Fox was keeping him extremely busy at the time. Bebe Daniels, a veteran silent-film actress who had more recently proven herself in musicals, was cast as the somewhat temperamental star of the show. To play her clandestine lover, George Brent was pulled from the cast of *Frisco Jenny*. Una Merkel, enjoying a surge of popularity at the time, was borrowed from MGM to play a saucy showgirl. As her pal and fellow showgirl, Ginger Rogers — who had already played more substantial parts in less substantial films — was cast.

One noteworthy aspect of the film was its attempt to build authentic backstage atmosphere. An almost "documentary" quality adheres to the rehearsal scenes, thanks partly to the casting of people with real-life connections to the music business or the Broadway stage. The most famous example of this is a cameo appearance by Harry Warren and Al Dubin, playing what they in fact were: the songwriters for the show-within-the-film. The story called for Warner Baxter to become infuriated over a particularly bad song and cut it from the show, prompting the songwriters to protest his decision. Dubin and Warren obliged by composing a deliberately bad song called "It Must Be June," then appearing on screen as the songwriters. ("You mean you don't like this number?" Warren timidly inquires. "Of course I like it!" thunders Baxter. "I've liked it since 1905!") After this initial cameo, Dubin and Warren continued to make occasional appearances in other films, invariably playing songwriters.

A more prominent part was taken by another songwriter. In an inspired casting decision, the role of Jerry, the rehearsal pianist, was given to Harry Akst, a popular songwriter with a long string of hits (including "Am I Blue?") to his credit. Even in such an unobtrusive role, Akst brings a note of authenticity to the rehearsal scenes — not least because we can actually see him playing the piano.

Similarly, one of the final production numbers ("Shuffle Off to Buffalo") features a song-and-dance man with genuine stage experience. Clarence Nordstrom may be little remembered today, but he had established a solid reputation in musical comedies on Broadway before migrating to Hollywood. As early as 1922, Alexander Woollcott had described him as "one of the few juveniles extant in musical comedy who suggests neither a longshore-

man nor a chorus man and whom you can listen to all evening without once thinking that it would be a good idea if someone killed him."

All these were minor roles at best, but a touch of the "documentary" aspect carried over into some of the more substantial roles as well. Perhaps the most celebrated piece of casting in the film was the choice of Ruby Keeler to play the chorus girl who makes good. She, too, had solid experience in musicals; in 1929 she was recognized by one journalist as "the young lady who made tap dancing popular in New York."

Contrary to most published accounts, *42nd Street* was not, strictly speaking, Ruby Keeler's first motion picture. In 1928 she had appeared in a one-reel Fox Movietone short simply entitled *Ruby Keeler*; later she had made a cameo appearance as herself, among a group of other celebrities, attending a movie premiere in First National's *Showgirl in Hollywood* (1930).

Certainly, however, Peggy Sawyer in *42nd Street* was Ruby's first bona fide role in a feature, and she approached it as nervously as any beginner. "I didn't know anything," she said in 1991. "The day after working, I used to follow them around asking how the rushes were — 'Did I look all right, did I do all right?,' you know, just like a little kid would." This blend of talent and a genuinely fresh, unspoiled nature would prove an irresistible combination on the screen.

Production of *42nd Street* was essentially scheduled for the month of October 1932 (principal photography began on September 28, with an estimated completion date of November 1). Scenes for the film were shot at all three of Warners' production facilities in the Los Angeles area: the original Warner Bros. studio on Sunset, the former Vitagraph studio in Hollywood, and the former First National studio in Burbank. The interior of the fictional "42nd Street Theatre," where all the rehearsal scenes took place, was built on Stage 2 of the Vitagraph lot.

The assigned director was Lloyd Bacon, replacing Mervyn LeRoy, whose work on *I Am a Fugitive From a Chain Gang* had run over schedule. Two weeks before production started, Bacon was joined by the man whose contributions would put *42nd Street* on the map: an up-and-coming young Busby Berkeley. Again, this was not Berkeley's first film; he had directed production numbers for several earlier films, including three Eddie Cantor musicals at the Goldwyn studio. But at Warner Bros., beginning with *42nd Street*, Berkeley's genius came into full flower. At his instigation the studio hired 58 dancers, many of whom had worked with him at Goldwyn. They were hired primarily for the musical numbers, but were also carefully placed throughout the rehearsal scenes in the "story" portion of the film.

To capture both Bacon's and Berkeley's ideas on film was a considerable undertaking, and it entailed an unusually large camera crew. Following the practice of the time, only one cinematographer was credited on screen: Sol Polito, ASC. In fact, however, Polito stood at the head of a small army of cameramen. Counting still photographers, the camera crew on *42nd Street* included, at various times, no fewer than 32 names. This was necessitated by the long hours of shooting, multiple-camera setups for some of the musical numbers, and more than one unit working simultaneously (including a second unit under the direction of Ray Enright, who spent a day shooting miscellaneous shots not requiring the principal cast). The basic crew throughout most of the shooting consisted of Polito, as director of photography; Michael Joyce as operator; and R.G. Mitchell as assistant. But even this unit was subject to variation.

Berkeley was given a separate unit of his own, at a separate facility, to shoot the musical numbers in *42nd Street*, but he was only gradually entrusted with such responsibility. From the beginning of production, he was a fixture on the set of Bacon's main unit at the First National and Vitagraph studios. The first musical number to be staged (and the first that occurs in the finished film), "You're Getting to Be a Habit with Me," was filmed by the Bacon unit during the second week of production. In any case, this is an extremely modest, prosaic number by Berkeley's later standards. It is simply sung and danced in a straightforward manner by Bebe Daniels and four chorus boys; there are no fantastic sets or astonishing camera angles. But Berkeley's influence on the number is evidenced by its energy and good humor, by the unexpected appearance of the Mahatma Gandhi character at the end — a typically offbeat Berkeleyan touch — and by a production still which shows the dance direc-

Powell and Keeler team up again in* Shipmates Forever *(1935).

Above: ***Merkel helps Keeler talk to Stone about a job in the chorus.*** **Right:** ***Keeler and Powell emerge from their dressing room. Toby Wing is second from right.***

tor in action during the filming of the number.

As if Berkeley had passed an entrance examination with "Getting to Be a Habit," he was next turned loose with a full-fledged production number. This was "Young and Healthy," and it utilized one of Berkeley's pet ideas. For his last Goldwyn picture, *The Kid From Spain*, he had staged a musical interlude with dancers on raised circular platforms. In an interview in later years, Berkeley claimed that he had wanted the platforms to revolve, but that Goldwyn had vetoed the extra expense. For the "Young and Healthy" number Berkeley proposed his revolving-platform idea to the notoriously cost-conscious Warners — and they accepted it. "And," said dancer Dorothy Coonan Wellman, "he was kind of cute with it. He said, 'I told them I wanted a revolving stage. They said it was going to cost fifteen thousand dollars' — which in those days was, I guess, quite a bit — 'and they gave it to me! Now what am I going to do with it?' And he chuckled."

Of course, Berkeley knew exactly what he wanted to do. The result was his first genuine production number for Warner Bros., with a relatively unknown Dick Powell singing "Young and Healthy" to a charming young dancer named Toby Wing (another carry-over from the Goldwyn studio and *The Kid From Spain*). This number is vintage Berkeley as he is best remembered today: dazzling, kaleidoscopic formations of dancers, with the camera doing most of the "dancing" — soaring overhead as the chorus forms geometric patterns, or gliding along the stage floor through arches of human legs.

Berkeley shot most of the number in two days (October 19th and 20th) at the Warners lot on Sunset, while Bacon's unit was working at the First National and Vitagraph studios. This simultaneous production was possible because Berkeley basically confined himself to one featured member of the *42nd Street* cast: ninth-billed Dick Powell. (He also borrowed Ginger Rogers, Una Merkel and Eddie Nugent briefly so that they could make fleeting appearances in the number, consistent with their appearances in the rehearsal scenes.) Powell's "unknown" status thus worked in his favor; he was considered expendable by the main unit and could be spared for a couple of days — which gave him an opportunity to show off his singing voice in the number.

But Sol Polito could not be in two places at once, and the attempt posed obvious problems for him. On the 19th he divided his time between the Bacon and Berkeley units, joining the former at 9:00 a.m. and finishing with the latter well after midnight. On the next day, Barney McGill, ASC covered for Polito with the Bacon company, while Polito spent the whole day (12 straight hours) with Berkeley. On Friday, the 21st, he topped off this grueling schedule with another double shift, working with Bacon until late afternoon, then rejoining Berkeley

for five hours to put the finishing touches on "Young and Healthy" — by which time, presumably, no one concerned felt particularly young *or* healthy. Perhaps because of this hard experience, along with other logistical considerations, filming of further production numbers was deferred until Bacon had finished shooting the "story" portion of the film.

Unfortunately, the "story" portion consumed virtually all of the scheduled production time. On Saturday, October 29, working through the afternoon and evening, Bacon wrapped up his part of the production. It remained for Berkeley — having inherited a film already behind schedule — to shoot two more production numbers, both of which had to top everything he had done previously (including "Young and Healthy") *and* help sell a musical film to a general audience prejudiced against musicals.

The first of these numbers was "Shuffle Off to Buffalo," with newlyweds Ruby Keeler and

***Powell continued to be the darling of the chorus girls, including Dixie Dunbar (right) in 1934's* Dames.**

Clarence Nordstrom boarding a train for their honeymoon. This was Berkeley's other specialty: the number that tells a story — in this case, the newlyweds being seen off by well-wishers as they board the "Niagara Limited," and the reactions of other passengers on board the train. (Most of these other passengers are members of Berkeley's chorus; sisters Toby and Pat Wing can be seen inside one of the berths.) In later years, Berkeley told interviewers that the ending of "Shuffle Off to Buffalo" had posed a special problem for him, and that he had sat on the set for three days trying to think of an idea. If this story was true, he had the foresight to do his thinking during Bacon's last week of shooting; the daily reports indicate that he went straight to work on Monday, October 31, and had the number finished by mid-morning on Wednesday. The last shot to be filmed was the most technically demanding: the long shot in which the Pullman car splits in two, opening up and revealing the interior where the song will continue.

The number that did require great quantities of time and preparation was that accompanying the title song, "42nd Street." This was the last portion of the film to be shot, and Berkeley pulled out all the stops, trying to ensure that this number would top everything else in the film. First the camera would tell a "story" by responding to Ruby's invitation to "come and meet those dancing feet," prowling along a highly stylized 42nd Street which vividly illustrated both the glamorous and the grimy sides of show business. This set, complete with Elevated tracks and a fleet of taxis, was constructed on Stage 8 at First National. The second part of the number, to be filmed (like Berkeley's other numbers) on Stage 1 at the Warners Sunset lot, would be a sheer abstract visual treat, with dancers ascending a staircase wearing cutout "buildings," after which the camera would appear to float up the side of a skyscraper built in forced perspective.

Although the film was already far over schedule, Berkeley took his time, lavishing a full week of rehearsals on this last number. Not being a dancer himself, he had Ruby Keeler create her own tap-dancing solo. "He had the number laid out in his head, you know, maybe a chorus of singing and then a chorus of dancing," she recalled. "They had a rehearsal hall; I could go over any time I wanted." Most of the group rehearsals were conducted at the First National stage, where the "street scene" would be filmed, while the "staircase" and "skyscraper" sets were being constructed at the Sunset studio. On Friday evening, November 11, Berkeley assembled his cast and his basic camera crew at the Sunset studio for last-minute rehearsals and tests of the special setups. These tests alone

Opposite: ***Wing and Powell being photographed in the "Young and Healthy" number. Berkeley, in dark sweater, sits on the crane. Several cinematographers worked on the sequence; this one is unidentified.***

ran until 2:30 a.m.

There followed four marathon days of shooting, with a schedule that stretched practically around the clock. (After the first day Michael Joyce went on to another assignment, and his place as Polito's main operator was taken by David Kesson, ASC.) Berkeley was under tremendous pressure by this time, obliged to produce a climactic number that would justify all the extra time and expense. Accordingly he took no chances, driving his chorus and crew relentlessly. As many as 18 takes were made in some cases, until Berkeley was sure he had what he wanted. (One notable exception: the hair-raising shot of the girl diving from the second-story parapet was filmed only once!) The number was filmed more or less in sequence, beginning with the scenes at the First National studio. Ruby Keeler's vocal chorus and tap solo were shot on Saturday the 12th, followed by Dick Powell's chorus and the rest of the street scene on the following day. On Monday the 14th the company converged on the Sunset studio for the stairway and skyscraper scenes, and by 11:00 Tuesday night the number was finished. Berkeley had accomplished his goal: a production number so spectacular as to surpass anything of its kind seen before, and to cause a sensation among audiences. On Wednesday afternoon, the 16th, he called back his chorus and crew to shoot some special scenes for the trailer, and with that the production of *42nd Street* was officially closed.

The film's success in the spring of 1933 is now a matter of record. Warner Bros. gave it a tremendous publicity boost by sending a railroad train, the "42nd Street Special," across the country. Loaded with Warners contract stars and other celebrities (almost none of whom had appeared in the film), the train made stops in key cities, staging parades, radio broadcasts and other activities — always leading up to the climactic event: the local premiere of *42nd Street*. But, as *Newsweek* pointed out, all the hoopla was unnecessary; the film was an attention-getter in its own right.

Its potential as a hit was obvious long before release. On the morning of November 16, 1932, the day after completing the "42nd Street" number, Busby Berkeley graduated from his weekly-employee status and signed a term contract with Warner Bros. His gambles had paid off. Ruby Keeler, for her part, gave *42nd Street* an extra "documentary" touch by living out the Cinderella story she had portrayed on the screen. Just as in the film, she went from virtual anonymity (with movie audiences, at least) to overnight success. Fans across the country took to their hearts her singing, dancing, and winsome charm. Dick Powell scored a substantial success of his own, guaranteeing him a more prominent place in forthcoming Warners musicals. The final shot of the "42nd Street" number, with Dick and Ruby united in a romantic two-shot, proved a portent of things to come; the duo went on to appear as a team in six more musicals over the next three years. And the overwhelming success of *42nd Street* did much to establish the direction that Warners' musicals would take for many years to come.

Credits

A Warner Bros. - Vitaphone *picture; produced by* Darryl F. Zanuck; *directed by* Lloyd Bacon; *screenplay,* Rian James, James Seymour, Whitney Bolton; *director of photography,* Sol Polito, ASC; *dance director,* Busby Berkeley; *second unit director,* Ray Enright; *based on the novel by* Bradford Ropes; *art director,* Jack Okey; *Gowns,* Orry-Kelly; *silks by* Cheney Brothers; *songs by* Al Dubin, Harry Warren; *Vitaphone Orchestra conduced by* Leo F. Forbstein; *film editors,* Frank Ware, Thomas Pratt; *director of photography, second unit,* James van Trees, ASC; *director of photography, trailer,* Arthur L. Todd, ASC; *additional photography,* Byron Haskin, ASC, Dev Jennings, ASC; *camera operators,* Tom Brannigan, Conway Davis, Kenneth Green, Michael Joyce, David Kesson, ASC, Hans Koenekamp, ASC, William Schurr, Richard Towers, ASC, Rex Wimpy; *assistant cameramen,* Archie Anderson, I. G. Burks, John Crouse, ASC, Louis de Angelis, Perry Finnerman, Carl Guthrie, ASC, Jack Koffman, J. M. Larson, R. G. Mitchell, Fred Terzo, William Whitley, ASC; stills, George Baxter, John Ellis, George Hommel, Buddy Longworth, Scotty Welborne. *Preview Jan. 11, 1933 at Warners Theatre, Huntington Park, CA; Released March 11, 1933; running time (preview) 103 minutes, (release) 89 minutes.*

Julian Marsh, Warner Baxter; *Dorothy Brock,* Bebe Daniels; *Pat Denning,* George Brent; *Peggy,* Ruby Keeler; *Abner Dillon,* Guy Kibbee; *Lorraine,* Una Merkel; *Ann,* Ginger Rogers; *Barry,* Ned Sparks; *Billy Lawler,* Dick Powell; *Mac Elliott,* Allen Jenkins; *Terry Neil,* Edward J. Nugent; *Jones,* Robert McWade; *Andy Lee,* George E. Stone; *Jerry,* Harry Akst; *Leading Man,* Clarence Nordstrom; *Songwriters,* Al Dubin, Harry Warren; *Playwright,* Charles Lane; *Slim Murphy,* Tom Kennedy; *Pansy,* Louise Beavers; *Secretary,* Patricia Ellis; *Cut from final release version: Geoffrey Waring,* Lyle Talbot; *the Actor,* Henry B. Walthall.

Chorus: Virginia Albertson, Loretta Andrews, Alice Arnold, Betty Bassette, Adrian Brier, Lynn Browning, Edna Callaghan, Maxine Cantway, Margaret Carthew, Mildred Claire, Dorothy Coonan, Hazel Craven, Sue Curtis, Alice Dahl, May Daly, Patsy Daly, Irma Dane, Dallas Dexter, Joan Dix, Mildred Dixon, Ruth Eddings, Kay English, Patricia Farnum, Gloria Fayth, Vina Gale, Sugar Geise, Virginia George, June Glory, Bernice Graves, Hariette Haddon, Sally L. Haines, Mary Jane Halsey, Ann Hovey, Peaches Jackson, Ruth Jennings, Adele Lacy, Margaret LaMarr, Skeeter LaMarr, Rose Lane, Patsy Lee, Laura Morse, Nancy Nash, Nita Pike, Sue Rainey, Sandra Rambeau, Betty Recklaw, Donna Mae Roberts, Barbara Rogers, Jane Shadduck, Bee Stephens, Alice Stombs, Virginia Thomas, Dorothy White, Renee Whitney, Emily Williams, Pat Wing, Toby Wing, Evelyn Wise.

The author wishes to thank four veterans of 42nd Street *— Toby Wing Merrill, Pat Wing Gill, Dorothy Coonan Wellman and the late Ruby Keeler — for granting interviews. Invaluable assistance was given by the following: Leith Adams, Carla Hanawalt and Lou Mahinay (Warner Bros. Archives, Burbank), Stuart Ng (Warner Bros. Archives, USC), Ned Comstock (USC Special Collections), Howard Prouty (Margaret Herrick Library, Academy of Motion Picture Arts and Sciences), Kathy Lendech (Turner Entertainment), Miles Kreuger (Institute of the American Musical), and Charles Silver (Museum of Modern Art). Grateful acknowledgement is also made to John Cavallo, Rob McKay, Marvin Paige and George Turner.*

New Products

compiled by Marji Rhea and Stephen Pizzello

Super 8 Sound Expands Palette

In the past, the Super 8 format has generally been considered the exclusive domain of students or filmmakers working with extremely low budgets. That perception has begun to change, thanks to the efforts of the 25-year-old company Super 8 Sound (with offices in Burbank, CA and Cambridge, MA), which recently introduced a new line of Super 8 films that presents filmmakers with a wider range of exposure options.

Based on Eastman Kodak's line of professional EXR films, Super 8 Sound's new stocks include Pro-896 (500 ASA), Pro-893 (200 ASA), Pro-848 (100 ASA) and Pro-845 (50 ASA). The company can also produce 8mm stocks from other films manufactured by Kodak, Fuji and Agfa. According to Super 8 Sound president Phil Vigeant, the stocks represent a major step forward for the format.

"Great cinematographers are like great chefs," Vigeant says. "With these new film stocks, the chefs have more ingredients than ever at their disposal. You can imagine, for Super 8 guys, what a big change it is to have all of these options. In the old days, there were only two options for Super 8 shooting: Kodachrome and Ektachrome. So in the past six months, you've gone from two choices to 20, and that represents a phenomenal increase in what you can do."

Super 8 Sound purchases 35mm stocks and converts them to 8mm with the help of custom machinery located in-house. Working in a dust- and dirt-free chamber, the Super 8 staff prepares the new stocks several times a week. "After we punch the holes, we cut the 35 stock into strands of 8mm and then load it into 50-foot Super 8 cartridges," Vigeant explains. "When I loaded my first cartridge, it took about four hours, but we've gradually streamlined the process, and now we have a kid who does it in about two minutes."

Vigeant believes that the new stocks will only add to Super 8's growing popularity as an acquisition format for video. In recent years, Super 8 has been used to augment videos by such major-name artists as Madonna and Paula Abdul. Vigeant also reports that the format proved its value on a recent Lexus commercial shot by Bruce Finn. "On that shoot, Bruce worked for three days, with a crew of ten guys, and exposed maybe a half-hour's worth of 35mm film. Then we went in to do some insert footage on Super 8. Working with four cameras, we got about a half-hour's worth of usable footage in 45 minutes. In my opinion, the 8mm footage was just as important to the overall look of the spot, and you can't beat the cost effectiveness: for every minute of 35mm footage, you can get 15 minutes on Super 8."

Super 8 has also become increasingly popular among feature-film cinematographers, including Robert Richardson, ASC (who used 8mm for Oliver Stone's *JFK*) and Michael Watkins, ASC (*Point of No Return*). Vigeant attributes this new interest partially to the fact that Super 8 Sound offers full in-house services for 8mm work, including film processing and equipment rental and repairs. "When major-league cinematographers need to integrate Super 8 into feature projects, they want to do it with integrity," he points out. "If you shoot 35mm, you get your camera at one place, your film at another place, you process it at a third place and you transfer it to video at a fourth. If you're shooting 8mm, you can do all that right here. We deal with a lot of people who are just entering the film market, and for them that's a big advantage. Otherwise, they'd have to go to a bunch of different places that are all trying to get the most money out of them."

Super 8 Sound's recommended shooting package, which includes the Beaulieu 7008 camera, costs approximately $8,000. The package offers many of the advantages associated with 16mm and 35mm filmmaking, such as sync sound, interchangeable lenses and a complete range of accessories. Super 8 Sound is also preparing to introduce a new camera, the Pro 2, to further augment the available options.

Despite the increasing professional interest in Super 8, Vigeant feels that the format is still the most useful yardstick for aspiring auteurs. "[Director] David Fincher's first project, before he did *Alien*^{3}, was Paula Abdul's *Straight Up* video. So you can look at those two projects and say, 'Here's the kid who did this, and here's what he does now. Am I in his league?' You can see how good it needs to be if you're going to have that dream come true. If you can't get to his level on Super 8, you won't get to the next level either."

For more information: Super 8 Sound, 2805 W. Magnolia Blvd., Burbank, CA 91505, (818) 848-5522, or 95 Harvey St., Cambridge, MA 02140, (617) 876-5876.

Compositing Tools Upgrade

Ultimatte has introduced the Ultimatte-7 Digital, a fully digital CCIR 601 compliant video compositing tool aimed at the video post, graphics and broadcast industries. All inputs and outputs are 8-bit or 10-bit serial, and matte generation and foreground processing is done in 4:4:4. The auto-selectable 525/625 line standards and the 100/240VAC switch selectable power voltage controls make the Ultimatte-7 versatile enough to use anywhere in the world. The unit also features a less-than-1/2-line delay through the unit, a SMPTE RS-422 editor interface, an internal file system, inputs for foreground, background and external matte and an output for downstream fully additive mixing.

Ultimatte Corp. has also unveiled Virtual Studio, a new process that offers an alternative to building expensive sets for broadcasters. "The process

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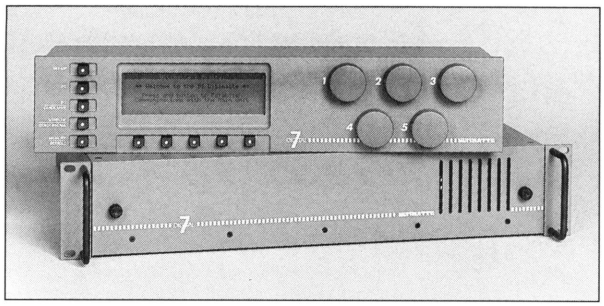


Top: ***The Ultimatte-7 Digital.*** **Bottom:** ***Version 2.2 of TouchVision's D/Vision-Pro.***

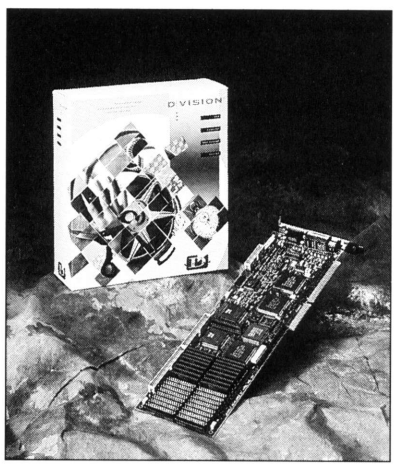
integrates multiple technologies and enables one to pick any background (virtual set) for news anchors and immediately superimpose them onto the virtual set, which can move and zoom in relation to the talents' movements.

The Virtual Studio consists of an Ultimatte Memory Head and appropriate camera, PC Utilities package, Ultimatte-7, a Silicon Graphics Onyx computer and proprietary software developed by IMP (Innovative Medientechnikund Planungs, GMBH). In operation, the virtual sets can be created offline with any number of paint programs available and imported as an image file. The operator then chooses a virtual set while still having the ability to alter any of the color attributes of the background via the computer interface. The SGI's output becomes the background input to the Ultimatte-7. The camera output, whose movements are being controlled by the Memory Head, is input to the Ultimatte-7 as a foreground source. The Ultimatte-7 is then used to composite the live action (TV anchor) sitting in front of a bluescreen set with the background from the SGI, and its output is then fed to a switcher. The Ultimatte Memory Head, combined with SGI's Onyx computer, are used to synchronize the perspective of the virtual studio in relation to the live action.

For information: Ultimatte Corporation, 20554 Plummer Street, Chatsworth, CA 91311, (818) 993-8007, FAX (818) 993-3762.

Video Editor Upgrade

TouchVision Systems, Inc., developers of the D/Vision digital video editor for the PC, introduced Version 2.2 of its D/Vision-Pro at NAB '94. Version 2.2's features include auto capture with serial VCR control, film edge number support, importing and editing of AVI files, additional online EDL file formats, a digital video effects suite for creating thousands of effects including slow and fast motion, and greatly enhanced graphical overlays. The system has an intuitive graphical user interface, and features six channels of CD-rate



digital audio, up to 80 hours of instantly accessible video, and SupeRTV video compression quality.

Thousands of digital effects can be created with D/Vision - Pro 2.2, such as compositing, keying, flips, stutters, and variable speed motion control. Up to five overlapping layers of motion video, graphics, or animation can be scaled and composited with varying transparency and key levels. And slow, fast, or reverse motion can be created by simply keying in the desired speed.

For information: TouchVision Systems, Inc., 1800 Winnemac Ave., Chicago, IL 60640, (312) 989-2160.

Dithering Process

Waves Ltd. announces the development of a new, second-generation dithering process. Increased Digital Resolution (IDR) is a technology combining noise-shaping and dithering in order to greatly reduce nonlinear distortions caused by quantization of higher-bit resolution to lower-bit resolution audio. Control includes: output word length (20, 16, 12 or 8 bits), noise-shaping type (non, moderate, normal, ultra), and dithering method (IDR1 or IDR2).

IDR is optimized for repeated use. It is well-suited for the Sound Designer II environment where audio files are often repeatedly processed and saved back to disk, but also equally applicable to real-time processing chains. Beginning with version 1.1 of Q10, a basic version of IDR for use with 20- or 16-bit files will be in every Waves plug-in.

For information: Waves, 4028 Papermill Road, Suite 14, Knoxville, TN 37909, (615) 588-9307, FAX (615) 588-9472.

Layering and Effects Package Upgrade

Wavefront Technologies introduces an improved user interface and expanded Macintosh file format support for its Composer layering and special effects package. The new features are designed to make it easy for Macintosh users to make the transition to graphics tools for Silicon Graphics workstations. Color icons, a programmable tool bar, new macros, and a digital video effect for moving 2-D images in 3-D have been added. The software also provides Network Video Control and supports the most popular Macintosh file formats, including Targa, PICT, Vista and TIFF.

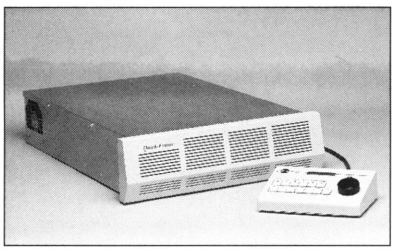
Composer is an ideal companion to Adobe Photoshop, which was recently introduced on Silicon Graphics workstations. Composer provides advanced image production for creating, enhancing, and recording high-impact presentations. Animation clips, still images, special effects, transitions, titles and annotations can be assembled in layers and sequenced in time. Composer supports all film and video formats through industry-standard recording devices.

For information: Wavefront, 530 East Montecito Street, Santa Barbara, CA 93103, (805) 962-8117, FAX (805) 963-0410.

Digital Video Disk Recorders

Sierra Design Labs has started shipping a new member of the Quick-Frame family of real-time digital video disk recorders. The Quick-Frame Ex is a high-end component video storage solution for production and postproduction facilities and computer-based animation and graphics systems advantaged by the additional capacity.

The new model stores just under 12 minutes of uncompressed 8-bit 4:2:2 component digital video in 5 1/4 inches of rack space. Features include



VTR-compatible RS422 control, true real-time nonlinear playback, 8/10 bit and 525/625 selectable video formats, Ethernet with TCP/IP, RSH and RCP support, and a multi-function SCSI port. The included Quick-Track trackball/soft control panel eliminates the need for bulky external control units. A traditional, full-function control panel is also available as an option.

The Quick-Frame Ex can be expanded economically to more than 90 minutes. Like other Sierra models, the Ex can be configured for 4:2:2:4 and 4:4:4:4 operation.

For information: Sierra Design Labs, P.O. Box 5713, 999 Tahoe Blvd., Incline Village, NV 89450 (702) 831-7837, FAX (702) 831-6375.

Audio Mixer

Sony has announced the availability of its third digital edit suite mixer, the DMX-E2000. Designed for video postproduction applications, the DMX-E2000 is a cost-effective, one-piece digital audio mixer. Equipped with both serial and parallel remote-control interface connectors, the mixer supports Sony's line of Digital Betacam products.

With 10 stereo inputs, two-mix buses and two-channel preview/monitoring, the DMX-E2000 conforms to the AES/EBU digital format. The new model's 16-channel inputs can be connected with up to four Sony Digital Betacam players or other digital audio sources. Additional four-channel auxiliary inputs allow connection with other digital audio equipment, such as DAT recorders and CD players. Eight AES-EBU output connectors provide four sets of PGM buffered outputs, enabling the DMX-E2000 to supply program outputs to as many as four digital VTRs.

The two-channel auxiliary send outputs on the DMX-E2000 permit direct connection of external digital effects equipment. Offering both manual control and editor control, the mixer allows for memory storage of manual

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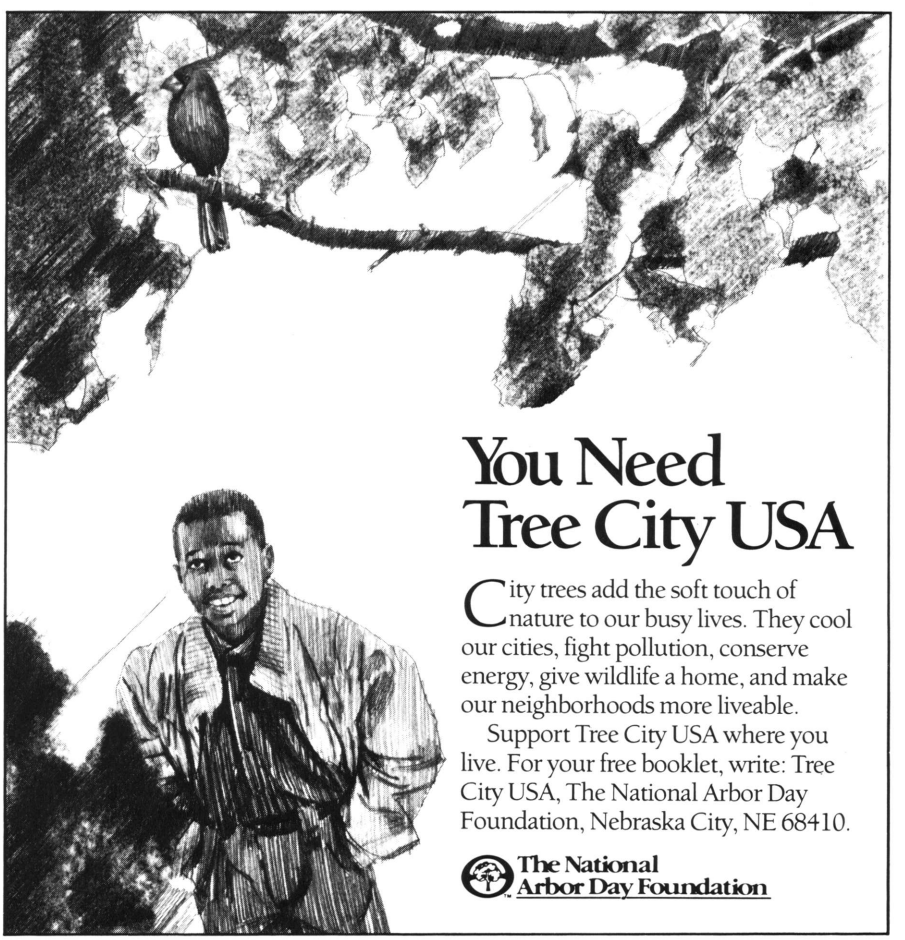
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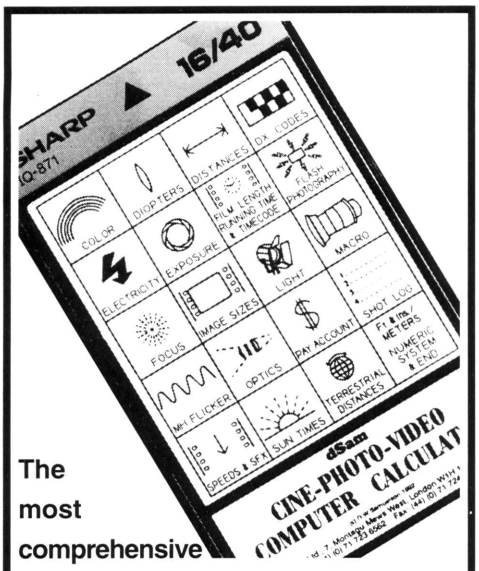

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movements and audio-follow-video crossfades. Up to 99 snapshots can be stored in the mixer's internal RAM. Signal processing for the mixer can be locked to an NTSC/PAL video signal, either composite or black burst. The mixer can also be locked to a word sync reference signal. Sampling frequency can be selected to be either 48kHz or 44.1kHz.

For information: (800) 635-SONY.

Digital Mixing System

The ix-11000, a fully-digital mixing system designed expressly for broadcast, postproduction, and recording applications, is one of the first products created by TOA's newly-formed Digital Mixing Systems (DMS) division in Japan. Consisting of a compact console and free-standing processing rack, the largest ix-11000 system is equipped with 64 inputs, 48 multi-track returns, and 48 multi-track send buses. 256 inputs and outputs are provided for patching both analog and digital signals entirely within the digital domain, while four bands of parametric equalization, high- and low-pass filters, delays, and dynamics are offered on each input and output. Control parameters within the system can be recorded or played back every 1/4-frame of SMPTE time code.

On an ergonomic level, the console is designed to facilitate ease of use and rapid learning of operational procedures. Unlike the oftentimes complicated operating environment associated with conventional mixing systems, the ix-11000 allows users to access any function instantly with the use of color touch-sensitive LCD screens and motorized faders. For added flexibility, console setups can be preset offline and recalled later with the use of an IBM-compatible PC.

Control windows within the system provide high-resolution metering (80dB range) of up to 32 channels on a single screen, fader levels with gain in dB, preset configurations, channel status, and EQ curves. A keyboard window is also offered which supplies on-screen keying functions identical to those found on a standard QWERTY keyboard.

Twin Motorola 32-bit microprocessors lie at the heart of the system and are backed by redundant power supplies. As a safeguard in the event of an AC main failure, the entire system setup is automatically restored within 30 seconds with the use of a specially-designed resume function.

For information: TOA, 601 Gateway Blvd., Suite 300, South San Francisco, CA 94080, (415) 588-2538.

Digital Audio Workstation

TimeLine Vista, Inc. has introduced the new Studioframe DAW-80 digital audio workstation. Studioframe is a new generation DAW by TimeLine following the recent acquisition of the WaveFrame product line. The new Studioframe utilizes technology based on the industry standard Intel/Windows platform. The basic configuration offers eight tracks of recording and editing capability, which will be expandable to a 32-track system. The workstation features icon-driven editing for quick, easy-to-learn and completely non-destructive audio operations which are easily interfaced into multimedia production and postproduction.

For information: TimeLine Vista, Inc., 2401 Dogwood Way, Vista, CA 92083, (619) 727-3300, FAX (619) 727-3620.

Nonlinear Video System

Data Translation's Multimedia Group announces a number of software upgrades and new product options for its flagship product, Media 100. Media 100 is a 100% digital, online, nonlinear video production system for creating high-quality video programs (NTSC or PAL) directly from a Macintosh computer.

Media 100 lets users digitize analog video and audio, store it in the computer, edit a complete video program using a picture-based interface, and record the finished program back onto videotape. Consisting of two NuBus boards and video production software compatible with Apple System 7 and QuickTime, Media 100 is a complete turnkey solution for corporate and industrial video production, animation, and multimedia authoring.

Media 100 has been designed to allow business and creative professionals to complete finished video programs with online video output quality rivalling broadcast results. The system's video output is 60 fields and 30 frames per second, meeting all broadcast NTSC standards. It supports input/output of two independent tracks of CD-quality, stereo audio. Within Media 100, four

tracks of CD-quality audio may be simultaneously mixed in real time to two stereo channels.

Features of Version 1.1 will include PAL compatibility, audio scrubbing, improved disk space management and error handling, and full program export to QuickTime. The Media 100 EDL Option generates industry-prevalent edit decision lists, reads SMPTE time code, and allows remote control of VTRs from the Media 100 nonlinear system.

With the EDL Option installed, users have the choice of producing a master tape, outputting an EDL file, or both. The EDL Option reads and references source SMPTE time code provided by the VTR over its serial link. This feature can save the user from manually entering time code information, whether or not an EDL is output.

In order to support popular editing systems, the EDL Option enables EDLs to be exported in the following formats: CMX 3400, CMX 3600, Grass Valley Group, and Sony BVE.

The EDL Option supports a range of professional VTR equipment utilizing the Sony 9-pin serial remote control protocol, through connection to a Macintosh serial port.

The Media 100 Static Title Plug In adds titling capabilities to the Media 100 FX Option package for video effects. The FX Option enables users to preview effects in real time and render, play, edit and output more than 50 Adobe Premiere effects as high-quality, full-screen, field-rendered video all from the Media 100 system. Future releases of the FX Option will include the Static Title Plug In, which lets the user key titles and graphics over any video clip. By importing any PICT formatted text, diagram, chart, logo or other visual from programs such as Adobe Photoshop, Studio 32 and other graphics, design and word processing software, the user can choose either alpha channel or color keying, set transparency levels and fade in/fade out.

For information: Data Translation Multimedia Group, 100 Locke Drive, Marlboro, MA 01752-1192, (508) 460-1600, FAX (508) 481-8627.

Theater Sound System

Digital Theater Sound (DTS) is a motion picture sound system designed to create full digital reproduction using a theater's existing sound system, and is

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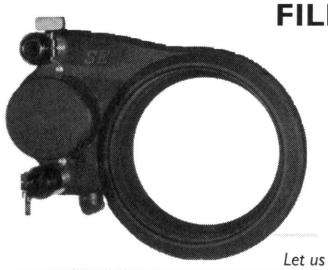

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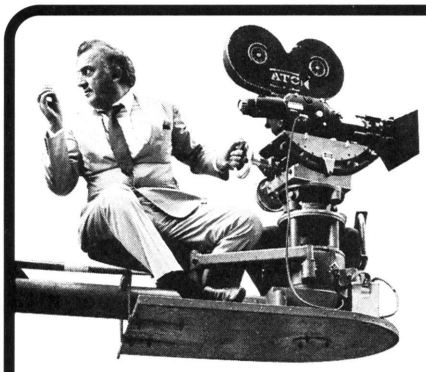

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compatible with the majority of theaters currently in operation. DTS, launched last June with the release of *Jurassic Park*, differs from other digital systems in that its digital soundtrack is not contained on the film itself, but on a separate CD-ROM disk. Using a digital time code printed on the motion picture film to control the operation of a separate CD-ROM player wired into the theater's existing speakers, up to six tracks of high-quality digital sound can be precisely cued to the action of the film. Systems which place the digital soundtrack directly on the film strip require greater data compression and are more vulnerable to damage than the DTS system. Other competitive systems require complex, expensive equipment to read data and correct for loss of and/or errors in data.

Films now shipped with DTS still contain the traditional analog soundtrack for theaters not yet equipped for DTS. Furthermore, this serves as a backup sound system, and enables the distributor to create a single inventory of prints.

The operation is completely automatic and fail-safe. After loading the film, the projectionist loads a CD-ROM disk into the CD-ROM player, which automatically plays the correct sound for each frame of film projected. Film edits and non-digital trailers are instantly accommodated. The system even checks to be sure that the soundtrack is the correct one for the movie being shown. The disk contains up to three and a half hours of digital sound, and the system requires no changes in current postproduction methods.

For information: DTS Incorporated, 31336 Via Colinas, #104, Westlake Village, CA 91362, (800) 959-4109, FAX (818) 706-1868.

John Alton, ASC to be Saluted by Museum of the Moving Image

by Brooke Comer

John Alton, ASC has an advantage over his contemporaries. The legendary cinematographer, who made rich blacks and low-key lighting into a powerful art form for the likes of John Ford and Vincente Minnelli, is not only revered, but also alive and well. His films will be on display at a John Alton restrospective at Manhattan's Museum of the Moving Image from June 4 through July 3, 1994, and so will the master himself.

The Alton retrospective is part of the Masters of Cinematography series, an annual event founded by the Pinewood Foundation. Following a personal appearance on June 4, selected Alton films will be screened, including *T-Men, Raw Deal, Border Incident, Devil's Doorway, Reign of Terror* (retitled *Black Book*), directed by Anthony Mann; *Elmer Gantry,* directed by Richard Brooks; and *Father of the Bride* and *An American in Paris,* directed by Minnelli.

Today, at age 93, Alton still maintains that "the most beautiful photography is low-key with rich blacks," a belief he expounds on in his soon-to-be-back-in-print book "Painting With Light." The lighting style he endorsed stemmed not from the edicts of his studio bosses in early Hollywood, but from his own personal aesthetic. The cinematographer always remained true to his own ideals, and when filmmaking began to change in the early '60s, he abruptly retired to avoid compromise.

"Low-key was very rare at the beginning of motion-picture history," says Alton. "Everybody tried to light it up at first, because producers thought that light was what the audience should see. Later, they discovered how much more effective a scene can be if it's a little darker. When cinematographers began to cut down on the light levels, that's when motion pictures began to look like art, like the works of great painters." He also points out that many early films were comedies, which did not call for the texture and pathos of the low-key approach. As more diverse storylines evolved onscreen, "lighting artists began to work with low-key, and they created some beautiful pictures.

Still spry and active, Alton spends much of his time traveling internationally. He still speaks fondly of his Hungarian homeland, where his interest in film began. "One day when I was about 12 years old, instead of going to school I went for a walk. I saw a man on the street doing something very unusual. He bent over a box that stood on three legs, and he cranked it with his hand. I had no idea what he was doing." But young Alton was a curious child and soon found out; the man was an early news photographer making a motion-picture newsreel. "I started to fall in love with what he was doing," Alton recalls. "I got to know the man making the newsreel, and I decided that was what I wanted to do when I grew up."

Alton finished school at an early age, thanks to his father's advice. "I was less than four years old when I started school, even though the required age was six. My father told me to go to school and tell them I was six. I said I didn't want to, because it was a lie. My father was an American who'd moved to Hungary in the 1890s. He said, "It's not a lie, it's what they call 'business' in America." So I started school, and finished school, two years younger than the other students."

After graduation, instead of going straight to college, Alton searched for "the man with the tripod." He traveled to Budapest, Vienna, Berlin and Paris before he found him in the French News office. Impressed by Alton's tenacity, the "tripod man" got him an apprentice job.

Newsreels gave Alton his start in the movie business, but he didn't develop his lighting techniques until he moved to America in the '20s and began working in movies. American relatives sponsored the Hungarian student, who ostensibly came to New York to go to college. But his commute to school took him past the Hearst Company Studio. Every day, from the elevated subway, he could look down and watch stars like Marion Davies at work. "I was fascinated by the making of motion pictures," he remembers. One day, he got off the subway a few stops early, and went to the studio to get a closer look at the mechanics of filmmaking. "That was my last day of college," Alton chuckles. "They offered me a job. I've been in the film business ever since, and thank God for it."

> " . . . When cinematographers began to cut down on the light levels, that's when motion pictures began to look like art, like the works of great painters."

Alton's first cameras were Universals, which were shaped "like a box, simple and primitive." By contrast, the Bell and Howells from Chicago were ultra-modern. "We cameramen always knew how important the camera was. But it took a while for everyone one else to catch on. When they did, cameras became much more complicated, sophisticated instruments." Lighting packages consisted of arc lights adapted from the stage ("Not very artistic," Alton notes). "The cameramen who specialized in lighting studied the masters, the great painters, and were able to adapt painterly techniques to motion pictures."

New York's film industry kept Alton busy, but when work went west, so did he. "People today have no idea what

Hollywood was like in my day," he reminisces. "Cinematographers weren't considered very important then, even though they often had more knowledge of filmmaking than the director and the producer. Directors usually came from the stage, and producers were often related to a studio head. That's the way the industry grew. But cinematographers had to have special technical knowledge. You couldn't automatically make a relative into a cinematographer."

When World War II broke out, Hollywood underwent an artistic upheaval. Alton remembers that the town experienced a sudden influx of European filmmakers whose varied tastes and textures gave new dimension to lighting and design. "There was a great migration when political complications broke out in Europe, and eventually when the war began," he explains. "Many moving-picture people from Budapest, Paris, and all over Europe came to Hollywood. The industry changed. Films were greatly influenced by foreign picture-making, but after the war, or a few years later, many of these talented people returned to their homelands, or disappeared in Hollywood."

During Alton's tenure at MGM, he worked with so many directors "it's hard to name favorites." He cites John Ford as "one of the best action picture directors," while Richard Brooks "went a little deeper into dramatics." And Anthony Mann, he says, was "one of the best." Alton retired in 1960 after completing *Elmer Gantry,* and began to travel. He remembers meeting Mann one night in 1967, in a casino high in the Swiss Alps: "He was working on a picture in Europe at the time, and wanted me to shoot his next one." Though Alton had formally retired, he agreed to talk to Mann the next day. But the next day, Mann was dead. "He'd been losing so much money in the casino, that probably helped kill him," Alton suggests. "The industry lost a great man."

Vincente Minnelli was another favorite director. *An American in Paris* was the only film to win Alton an Academy Award, but it was a musical and "the cameraman didn't have as much [of a] challenge in musicals. You just had to pump a lot of light into them."

The *film noir* of the '40s and '50s gave Alton an opportunity to use low-key and rich blacks to maximize tension and drama. There was1950's *Mystery Street,* directed by John Sturges, a stylish and lurid film about the murder of a pregnant prostitute, and the unforgettable treachery that lurked in the moonlit landscapes of Anthony Mann's *Border Incident* (1949), about illegal immigrants exploited for slave labor. "With dramatic pictures," says Alton, "lighting was born."

Today, Alton is disappointed by the average film. "A few foreign and American films are outstanding," he notes, citing *Schindler's List* as one of the best. "And since the public accepts the average films, it must be that they're right and I'm wrong. But it seems that producers once wanted more from the people who made pictures, and they became works of art."

Now Alton spends his days reading and writing, "a step up from lighting, because lighting is imitating nature, it's artificial. When you write, it's brainwork." He shrugs off his sudden retirement at age 59 in 1960. "I did what I wanted, I made some good pictures, and I wanted to live a little too. At that time, the average age was 70. I wanted to travel, and read, and write. I wanted to live and I did. And I'm still living."

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Books in Review

by George Turner

British Cinema in Pictures: The British Film Collection
by Patricia Warren
Trafalgar Square, paper, 256 pps., $34.95

Even the British seem to enjoy taking pokes at old English movies, a lot of which were, admittedly, bloody awful. On the other hand, the British film industry has given us countless enchanted hours with Alfred Hitchcock, Madeleine Carroll, Carol Reed, James Mason, Jack Cardiff, Anna Lee, Jean Simmons, Sean Connery and the subsequent James Bonds, Laurence Olivier, David Lean, Vivien Leigh, Charles Laughton, Rex Harrison, Michael Redgrave, Guy Green, the Kordas, Margaret Lockwood, Robert Donat, Freddie Young, Sabu, Alec Guinness, Noel Coward, Michael Powell, Raymond Massey, Leslie Howard, Emma Thompson, Daniel Day-Lewis, Anthony Hopkins, Michael Caine, Richard Attenborough and many, many others.

This revised and updated version of a 1984 book is basically a collection of stills — at least 1,000 of them — with a brief text at the head of each decade and good, informative captions throughout. It's arranged chronologically and so gives a reasonable overview of the subject from the beginnings in 1896 through 1993. All the high-budget shows are included and, happily, a great many of the bread-and-butter productions and "quota quickies" are represented as well. Scenes from *Things to Come, The Red Shoes* or *Hamlet* can be found in innumerable books, but what a rare delight to glimpse moments from, say, *Emerald of the East, The Missing Rembrandt, Condemned to Death, Turn of the Tide, Living Dangerously,* and literally hundreds of other forgotten smaller gems.

The only real challenge to full enjoyment is that so many photos are reproduced too small to do them justice, an insuperable problem in any attempt to cram such a great mass of material into a single volume.

A Guide to American Silent Crime Films
by Larry Langman and Daniel Finn
Greenwood Press, cloth, 384 pages, $69.50

A companion work to Langman's *A Guide to Silent Westerns,* this reference book covers the whole crime front as well as possible, to the tune of some 2,000 alphabetical entries. These range from very primitive stuff, such as Edison's brief 1897 subject, *Arrest in Chinatown, San Francisco, Cal.,* to the rash of old-house mysteries, comedy thrillers and gangster dramas that closed the silent era and exploded noisily into the talkies.

Many of the feature-length films are represented in greater detail in the indispensable AFI catalogs, but Langman and Finn also cover serials and short subjects. Except for a few obscure independent productions on which such information has not been found, each title features a fast plot summary and lists directors, writers, and major players.

There is also a good introduction tracing the evolution of crime in cinema and a listing of the many production companies represented. This is a valuable library-bound volume for the serious researcher, but it's a bit pricey for the casual reader, especially as it's presented as plain vanilla, sans pictures or even a pictorial jacket.

Music and Cinematography

The harmonious relationship between cinematography and music was brought to mind at a recent autograph party at Dutton's Books in Brentwood, California. The honoree was Hans J. Salter, 98, the Vienna-born composer-conductor who scored literally hundreds

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of motion pictures. The occasion was the release of a new CD by the RTE Concert Orchestra of Dublin of two Salter scores, *The Ghost of Frankenstein* (1942) and *House of Frankenstein* (1944). The Marco Polo disc was manufactured in Germany, where Salter conducted theater orchestras and scored UFA films before coming to the U.S. The selected works are appropriate, inasmuch as Salter is best remembered for these and about 30 other mystery and horror pictures he worked on as a musical director at Universal between 1937 and 1947.

Salter also composed for romantic dramas, comedies, musicals and Westerns, with no thought of specializing. Yet, for some reason, what lingers in the memory is the otherworldly music that accompanied the on-screen exploits of Dracula, the Mummy, Frankenstein, the Wolf Man, the Invisible Man, and the other monsters and mad scientists who performed on the stages at Universal in what the company called their "Midas productions." As the CD played over the store's intercom, I realized how perfectly his music reflects the distinctive visual styles of these films.

Many cinematographers and directors derive inspiration from music. Conversely, when Salter studied the images created for the screen, he was moved to capture and enhance their essence in music — a happy marriage of art forms. Listening to the *Ghost of Frankenstein* music brings to the mind's eye the shadowy mood evoked by Woody Bredell, ASC in the early scenes in the fear-haunted Frankenstein village, and the sharply-etched, modernistic images of the town of Vasaria by Milton Krasner, ASC. The styles of these cinematographers are entirely unalike, and the score reflects this. The same is true of *House of Frankenstein,* which has deep-focused radial compositions by George Robinson, ASC. These are the three men with whom Salter was most often linked in the horror genre (eight times with Bredell, seven with Robinson, four with Krasner).

The orchestrations, recreated by John Morgan because the original orchestral parts were destroyed in a studio "new broom" operation, are true to the original, and the orchestra plays well under conductor Andrew Penny. Some tempi are annoyingly slow compared to what we hear in the films, however.

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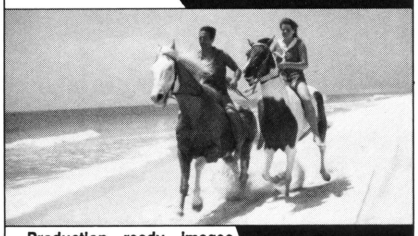

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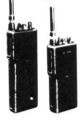

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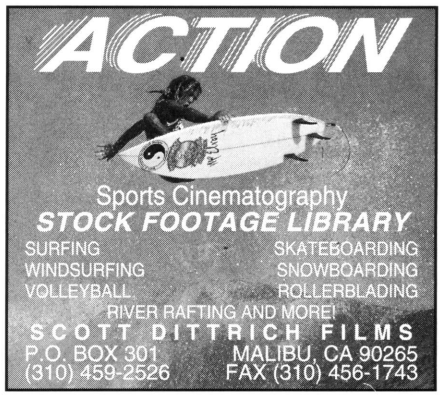

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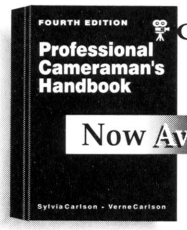

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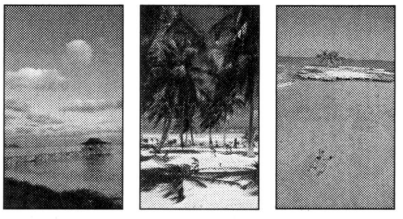

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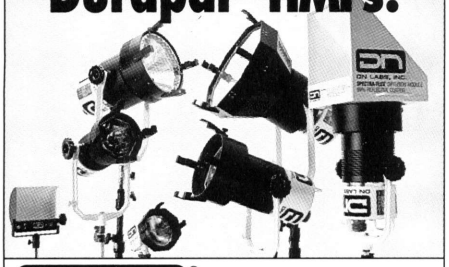

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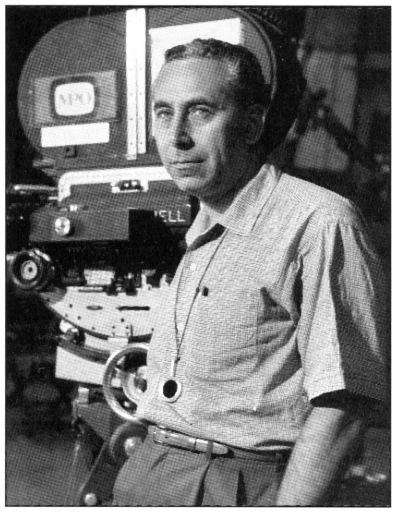

Zoli Vidor, ASC, a cinematographer whose career at various times centered in the studios of New York, Hollywood and several European countries, died March 6 in Palm Springs of complications from pneumonia. He was 83, and had been an ASC member since 1955.

Born in Hungary on March 31, 1910, Vidor attended the Engineering College of Vienna, graduating in 1931. He then worked at various jobs in the Austrian film industry and soon became a cameraman. At Tobis Sascha Studios in Vienna he assisted some of the top European cinematographers, including Curt Courant on *Scampolo* in 1931, Eugene Schufftan on *Oel ins Feuer* (produced by Sam Spiegel) in 1932, and Oscar Boville on *House of Dreams* in 1933. At Hunya in Budapest he worked with Fritz Schultz on several pictures in 1934-35, including *Salto* and *Ende Schlecht.*

He became a director of photography in Vienna in 1934 at Tobis Sascha with Kert Gerron's production, *Bretter,* followed in 1935 at Rosenhuegel Studio with *Letzte Liebe.* In 1936 he worked with Franz (later Frank) Planer, ASC in Vienna on *Maskerade* and photographed Alessandrini's *Una Donna* at Cinecitta, Rome. He also photographed features in Prague and London.

In 1938 Vidor came to the United States, and in due time he became an American citizen. Unable to enter the unions, he worked for years as a still photographer, including a year in the MGM photo lab. In 1944-45 he joined his fellow Hungarian emigre, George Pal, photographing the Oscar-winning Puppetoon shorts in Technicolor for Paramount. Later he became a producer, director and photographer of industrial and educational films for Raphael G. Wolff Studios in Hollywood. In 1948 he opened his own animation studio for 16mm pictures and was able to join Local 659 as a 16mm cameraman.

Vidor returned to New York in 1950, where he photographed many commercials. "Here I was able to join Local 644 as a first cameraman and so get back into my profession," he recalled. He also made documentaries and several features, including *Bible Story* (filmed at the historic Biograph Studio) and Warner Bros.' *Homer Bell.* He entered the television field with two half-hour series produced in New York, *American Sportsman* and *Inner Sanctum.*

Feature credits include *Come Spy With Me* (20th Century-Fox, 1967) with Troy Donahue, *Killer Behind the Mask,* and *Touch Me Not* (Gemini, 1971) with Lee Remick. His live-action short, *Graffiti,* was nominated for an Academy Award in 1985. He won a Gordon Parks Award for Cinematography in 1986. He was affiliated with MPO Videotronics and later was president of Filmgate Inc. in New York.

Vidor was a member of the Academy of Motion Picture Arts and Sciences, IATSE Locals 659 and 644, and the Directors Guild of America. He became an ASC member in 1955 and entered retired-active status in 1984.

Survivors include two sons, Ronald and Gary, and two daughters, Jacki Vidor Bombeck and Sindy Robinson. The family suggests donations be made to the World Wildlife Fund, 1250 24th St. NW, Washington, DC 20037.

Continued from page 100

have to realize that at this point there is very little beyond idealism to attract them to our ranks.

- Understand that the union does not supply us with work, production companies do. The purpose of the union is to act as a collective bargaining unit for all of us, to protect our rights, guarantee safe working conditions and a fair wage, and act as our agent in solving grievances.
- In light of this we have to make it more attractive for production companies to want to work with us. We have to stop acting like they're our enemies and find ways to be competitive in a tough market. There must be a true flexible scale tailored to fit every type of production, and we have to be willing to make deals and even change some of our standards (as long as it doesn't affect our safety or our health). We cannot continue to be an island that nobody wants to come to because of hostile natives. We have to think like the businesses we are trying to serve and become competitive in today's market (believe me, right now we are not, and we are losing ground fast).
- We must try to end the little fiefdoms of multiple locals all over the country fighting amongst themselves. We must instead create a national union that will serve us all equally wherever we work, with a pay scale that will make it hard for one area to undercut another, and still be attractive enough for producers to want to use us.

There are some progressive locals in the IATSE who are attempting to move into the 21st century. However, the majority of locals in the IATSE are still stuck in the '50s. We have to move if we want to be a viable solution for the future.

Wouldn't it be wonderful if everybody was in the union and there was a reasonable and equitable payscale that everybody agreed to so there wouldn't have to be the constant angst about who is trying to screw whom? That's not going to happen if we remain closed to discussion and if we continue to try to protect our shrinking turf rather than trying to become competitive. If we continue to keep our heads in the sand, there may soon be no more sand to hide us.

From the Clubhouse

The ASC's newest active member is James Glennon, inducted in a March meeting by the Board of Governors. Glennon started his career as an extra and stand-in, then began working in the mail room at Warner Bros. and entered UCLA film school. Two years after graduating, he shot and acted in *Jaws of Death,* which still plays on late-night television. During his years as an assistant cameraman, he worked on both TV shows and features, ranging from *Gilligan's Island* to Francis Ford Coppola's *The Conversation.* Other feature work during this time included *Ordinary People* with John Bailey, ASC; *Altered States* with Jordan Cronenweth, ASC; *Breaking Away* with Matthew Leonetti, ASC; and *Taps, Electric Horseman, Absence of Malice,* and *True Confessions* with Owen Roizman, ASC.

In 1973 he became an operator and found himself doing more and more second-unit photography, until in 1980 George Lucas asked him to do the American unit photography on *Return of the Jedi.* His feature work as a director of photography includes director Joyce Chopra's *El Norte* and *Smooth Talk; Flight of the Navigator, Time of Destiny, December, Show of Force; Wild Life; The Lounge People; Me, Myself & I; A Part of the Family;* and *The Gift,* directed by Laura Dern.

His television credits include Chopra's *Disappearance of Nora, Baby Snatcher, Murder in New Hampshire,* and an Edgar Allen Poe project for PBS; as well as *DEA, Emma & I,* American Playhouse's *Lemon Sky,* and the Disney pilot *Buddy Blues.*

Glennon is on the Executive Board of the UCLA Theater Arts Alumni Association and is a member of the Academy of Motion Picture Arts and Sciences. He also serves on the panel of judges for the Nichols' Screenwriting Fellowship, and is a speaker and resource person at the Sundance Institute. He is also a guest speaker at UCLA, USC, the AFI, and Pepperdine University.

He recently finished another film with *Smooth Talk* director Joyce Chopra, and is currently in Beijing filming director Peter Wong's *Pepper,* a romantic comedy set in rural China and New York City and partially funded by the Chinese government.

ASC members are currently at work on the following projects:

Ralf Bode: *Safe Passage,* New Line Cinema, shooting in New York and New Jersey.

Dean Cundey: *Casper,* Universal, shooting in Los Angeles.

Jack Green: *It Happened in Paradise,* Twentieth-Century Fox, shooting in Ontario.

Laszlo Kovacs: *The Scout,* Twentieth-Century Fox, shooting in Mexico, New York, and Los Angeles.

Matthew Leonetti: *A Low Down Dirty Shame,* Buena Vista, shooting in Los Angeles and Arizona.

Don McAlpine: *Clear and Present Danger,* Paramount, shooting in Los Angeles, Mexico, and Washington, D.C.

Don Thorin, Sr.: *Boys on the Side,* Warner Bros., shooting in New York, Pittsburgh, Tucson, and Los Angeles.

Vilmos Zsigmond: *The Crossing Guard,* Miramax, shooting in Los Angeles.

Tough Love: A Union Member's Plea for Reform

by Steven Poster, ASC

The opinions expressed in this column are those of the author, and do not necessarily reflect the views of the ASC or American Cinematographer *magazine. Since this column is intended as a sounding-board,* AC *encourages our readers to respond to the issues raised. — Ed.*

In this month's column, I'm going to say some things that will probably get me into trouble. But when has that ever stopped me?

I don't think *anybody* is saying what should be said about the unions, and I've finally gotten concerned enough to stick out my neck. It's a big subject that can't be covered in this one column, but I must start talking about it because I am a great believer in trade unions and I see ours being destroyed by our own mistakes.

The first tenet of trade unionism is to organize. This really hasn't happened since shortly after film unions were first started. Everybody got in and then closed the door behind them. Of course, there have been some small efforts lately to organize blatantly non-union productions. And there have been a few open-door periods in the past (usually forced by legal actions). But our unions have become protectionist to the point of destroying the small turf that we are trying to hold onto. And by protecting our turf we have created our own competition.

Starting in the 1960s, film schools began turning out a large number of graduates, whom we blatantly kept out of the "club." These people had a need and a right to work, and over the ensuing years they became a viable work force outside of the union. As this work force grew, production companies seized the opportunity to save a few dollars on the labor budget.

When it first became viable for companies to work non-union, there were people available in most of the support categories to fill in crews, but there was a lack of experienced keys. This is where a combination of our own members and the Reagan Administration began the systematic undermining of the strength of our unions.

IA members were very willing to work non-union because work was tight in most markets at the time. Throughout this period, the union waffled on letting the members do the work or trying to stop them. It was hard to stop our own members, in all good conscience, because some of the enlightened officials realized that our members had to make a living. However, there were periods when the unions tried to stop non-union work by members (to no avail: the work was out there and IA members were taking it).

In the meantime, the Reagan Administration was making it very easy for foreign nationals to come to America to work as directors of photography. These cinematographers were willing to work under any conditions for less pay than our members, just for the opportunity to shoot for "Hollywood." Whatever they made was usually more than they would make at home anyway.

Now, I'm not against foreign cinematographers working here legally. After all, this is America, and most of our parents and grandparents also came here to find a better life. These people are our colleagues and should be welcomed as such (in fact, many have been made members of the ASC). But there is still no reciprocity with the countries they come from. Just see what happens if an American cinematographer tries to shoot a picture in France, England or Australia, even if we are willing to work for the local pay scale.

Another problem lies with our brother and sister unions (DGA, SAG and the Teamsters), who have shown limited solidarity with us. There has been lip service to solidarity at times, but if anyone can name a member of these unions and guilds that has refused a job because the crew was not IA, I would be very surprised and pleased to hear about it. In fact, the DGA is beginning to have its own problems with more non-DGA production happening all the time.

At this point it has become very easy for all of the major production companies to work non-union. But non-union doesn't really mean non-union, it just means non-IA. They can save a little money, abuse the crews and get away with it easily. Nobody is out there to stop it, including our own "International."

So what can we do now that we've lost most of the bread-and-butter production that kept our Pension and Health coffers filled for so many years? If you haven't noticed, both plans are in serious danger of disappearing over the next five to ten years if we don't do something. And if you haven't noticed, most TV production, feature production and commercials are now being done non-IA. How many times lately have you been asked if you are IA on a job interview, and turned down when you answer yes?

In the short space left I am going to try and outline a few ideas about what I think we have to do to survive in today's market.

- First, we must let every film worker out there in the union immediately! That's right, stop trying to protect what may not exist in a short while. Everybody in this country has a right to be a member of a labor organization. It is un-American (and stupid) to try and keep them out. Are you afraid of working in an open market? If you are, you must not be very good at what you do and can't stand up to competition.
- The roster *must be eliminated.* It serves no purpose anymore except to hurt our own members. It also makes it very unattractive for outsiders to try and join our ranks. Anyway, why should an outsider want to be a member when there is much more work for them on the outside? We have to find ways to make it attractive for them to join. Yes, that's right, we have to recruit them. You

Continued on page 99

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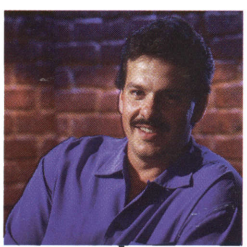

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